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1766 Elston Ave. Chicago, U.S.A.

MAY, 1921

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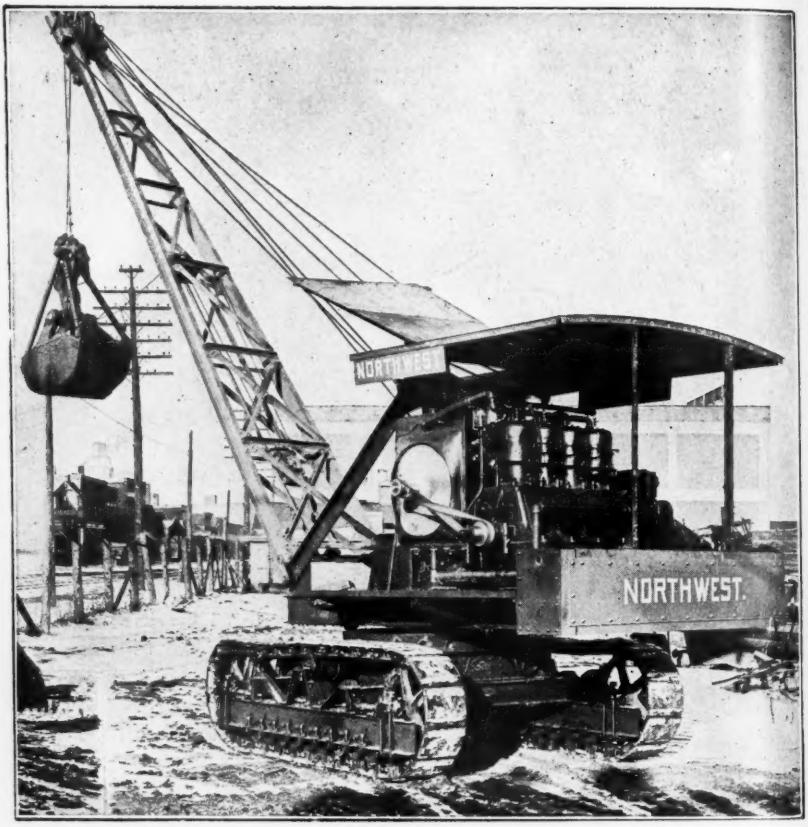

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GREEN BAY, WIS.

Pit and Quarry

Member Audit Bureau of Circulations
A Monthly Journal for Producers of Sand, Gravel, Stone, Cement, Gypsum and Lime

VOL. 5 CHICAGO, ILL, MAY, 1921 NO. 8

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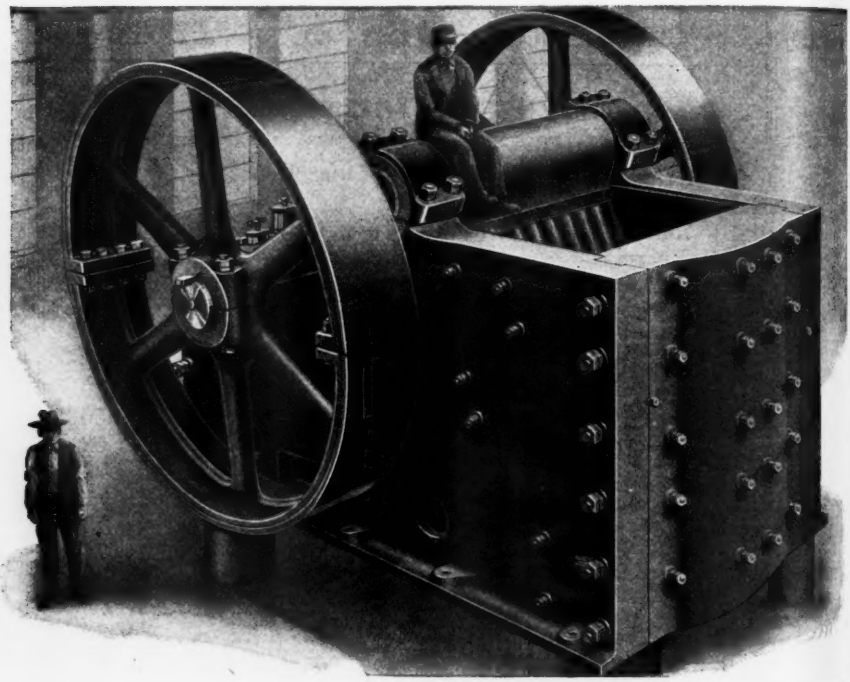

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C. G. BUCHANAN CO., INC.

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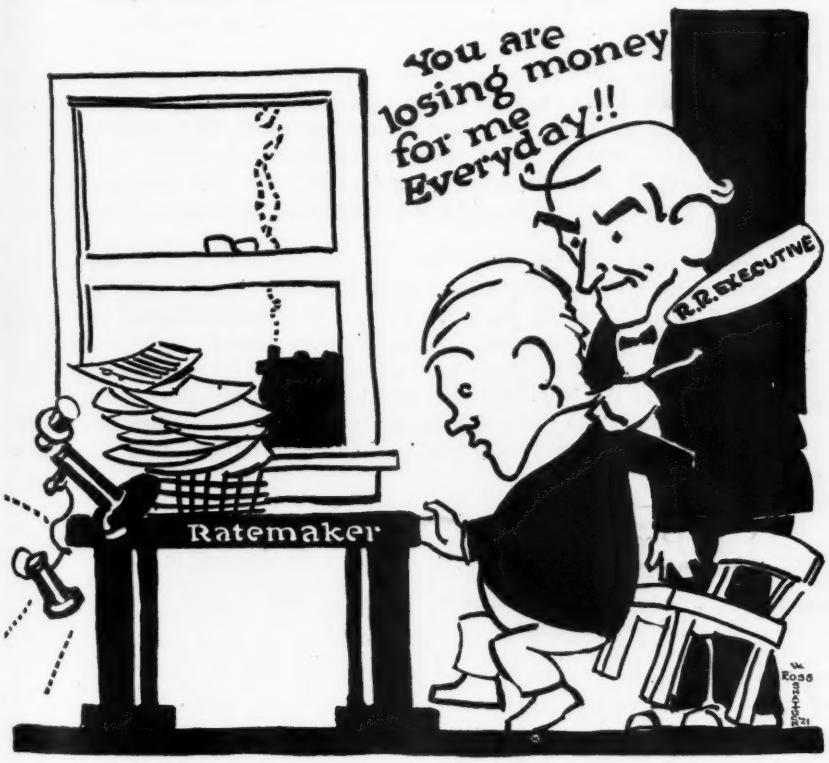
Pit and Quarry

Vol. 5 | Chicago, Ill., May, 1921 | No. 8

The Old Man is Beginning to Wake Up



Prophecy and Optimism

OUR cartoonist is both a prophet and an optimist. Few of the railroad executives have as yet come to the point where they are willing to acknowledge that high rates are losing money for them—where they will take the matter of rate making into their own hands and place rates on such a plane as to encourage the movement of traffic.

But we believe they are coming closer to that point every day—either

voluntarily or under pressure from the outside. And to that extent our cartoonist is correct. He is a true prophet and his optimism is well founded.

As showing the direction of the wind, it is reported that the Muscatine, Burlington & Southern Railroad has placed in effect rates on gravel and sand showing 40 to 55 per cent reductions, and the officials say that the increase in the amount of materials hauled will more than justify the new rates.

The new rates are as follows: Five miles and under, 30 cents per ton; 6 to 10 miles, 33 cents; 11 to 15 miles, 36 cents; 16 to 20 miles, 39 cents; 21 to 25 miles, 42 cents; 26 to 30 miles, 45 cents, and so on, with a graduated increase of three cents per net ton for each five miles for the length of the road.

There are at least two things to which the railroads may well give serious consideration: The large number of idle cars which are now lying in their yards, and the menace of the roadside pit.

The first of these they may think will right itself in the readjustment of industry; but the latter, if allowed to develop to any proportions, will mean a permanent loss.

Wisconsin now has the roadside pit with it, to some extent, with the imminence of its indefinite multiplication unless something is done to decrease the freight burden from the legitimate commercial plant. The authorities there recognize the full force of the slogan of the Wisconsin Mineral Aggregate Association that "It must be screened and clean," but are nevertheless confronted with the problem of building a certain road mileage with the money appropriated.

It may be, however, that relief will be accorded in that state even before this page is read; for a strong presentation was made a few days ago before the Railroad Commission of the state by the Wisconsin Mineral Aggregate Association and others interested. Facts were presented at that hearing to show that the railroads of the state have already lost $800,000 worth of business this year because of the high rates on road-building materials.

That is the money the railroad man wants to save. And ultimately he will tell the rate-making authority, whatever it may be, "You are losing money for me everyday!"

Marl Production

Geological Survey Figures Show Gain of 6.6 Per Cent

REPORTS made to the United States Geological Survey, Department of the Interior, show that 97,487 short tons of calcareous marl, valued at $322,329, was produced in the United States in 1920. These figures represent an increase of 6.6 per cent (6,050 short tons) over the quantity produced in 1919, but a decrease of 1.5 per cent ($4,955) in the total value of the product. The average price per short ton was $3.31 in 1920 and $3.58 in 1919.

Most of the marl sold in 1920 was used in agriculture, in the same manner as pulverized limestone and agricultural lime, but some was used as a filler in patent fertilizer. In Arkansas, where the product included chalk, a small quantity was sold as whiting, which brought a much higher price than the agricultural material.

Nearly one-half of the total output—42,510 short tons—was produced in Virginia and was valued at $143,373.

Albany Limestone Company, Albany, Ind., is incorporated with $15,000 to operate a stone quarry. Their directors are: George McGinley, Claude E. Burdick and Arthur W. Lockhart.

Sizes of Steam Shovels for Pits and Quarries

By DANIEL J. HAUER

As quarrymen realize more and more the value of steam shovels in picking up the blasted rock, shovels are being purchased and installed in quarry operations. The writer is called upon many times in a year to pass upon the purchase of steam shovels for both the handling of gravel, sand and rock.

In doing this there are many considerations, as power to be used, the kind of traction, type of shovel, size, etc. Discussions of many of these features, as well as equipping shovels for quarry work, have been given within the last two or three years in PIT AND QUARRY, but the subject of size of shovels has not been discussed at length and this question is one that must be decided in every case, while the others may be decided by local conditions, or by preference of the operator. The size of shovels is also decided in too many cases in this manner, when it should be considered from many new points and decided entirely upon the character of the rock, the height of ledge worked, the methods of blasting, and the capacity of the crushed plant, or for sand and gravel by the height of the bank and the output demanded in a day.

The writer in this discussion refrains from mentioning any manufacturer's stock name or number, preferring to refer to sizes of shovels either by their gross weights or sizes of dippers, nor does he mean to insinuate that any particular makes of shovels should not be used in quarries, nor that they will not stand up to the hard work and usage. The recommendations are based upon his own experience in such work and upon that of others.

For sand and gravel any shovel made by a reputable manufacturer will stand up to work. It is not a question of size as to its endurance, the size must be decided upon as to the daily output and the height of the bank. Thus if 500 tons a day are to be gotten from a pit, it being possible to do this with a 20-ton shovel equipped with a ¾ yard dipper, then the height of the bank that is economical with this shovel can be worked. This principle can be applied to any size shovel, the output deciding the size to be selected.

The only exception to this rule is when the bank is low, due to the deposit being shallow. Then it is manifestly wrong to attempt to put a large machine at work on such a deposit, even if several thousand tons are to be taken out in a day. Such a height of breast should be worked with several small shovels.

Steam shovels operated as shovels are not always the best for sand and gravel pits. The pit may have in it such water-bearing strata as to make it impracticable to attempt to take a steam shovel down into it. The excavation in such cases should be made from on top. Then a drag line excavator can be used, saving large sums of money in pumping. A steam shovel can be equipped with a long boom and a grab bucket, either a clam shell or an orange peel, and the excavation made from the top of the bank. Another saving made by this method is in keeping the vehicles or trucks on top of the ground, eliminating the haul, up a heavy grade. There are other excavating machines that can be used for such work, but they cannot be consid-

ered in this discussion, which is exclusively pertaining to steam shovels.

Then, too, in pits, shovels must frequently be moved from place to place quickly, as sand and gravel will not run even as to size and quality, so that the equipment should be mobile, and this is not the case with large shovels. This has made the shovels of 40 tons or less very popular with sand and gravel producers. It is even possible with the smaller size shovels to load railroad cars and if only a limited number of cars are to be loaded a day the smaller size shovel should be selected, but if a large number of cars must be loaded, naturally a larger shovel should be installed.

In rock work there are many more factors to be considered than in producing sand and gravel. Many operators select a shovel for stripping their ledge and then use it for handling rock in the quarry. This seems ideal in many ways, but the work of stripping may cover only a period of a few weeks or months, the area stripped being enough to do for one or two years' work. When this is the case it can be seen that it is a fallacy to select a machine for one kind of work, when most of the season the machine is working upon other work and under entirely different conditions. It would be much cheaper and better business to do the stripping by some other method or to have a shovel suited for quarry excavation and use it for stripping only when necessary.

It must not be understood that small shovels are not recommended for stripping, for they are well adapted for this work. Larger shovels can be used for the stripping but it will cost more to take them from the face of the ledge to the top and back.

The work of handling the blasted rock is hard and gruelling for both men and machines. Any machine that will stand up to this work must be well built, and it is a recommendation for any shovel that will year after year take work from a quarry. It is evident, though, that the lighter the shovel is, the more quickly it will be used up under such conditions. Thus a 20-ton shovel is not able to stand up to such excavation as well or as long as a 40-ton shovel, nor will the latter last as long or keep as constantly at work as a 60-ton shovel; and so it is right through the list. It does not make any difference whether the same or different manufacturers build the shovels. However, there is a great difference in shovels built by different manufacturers, for some will build a small shovel better than others may build a larger machine.

The durability of a shovel is only one consideration. Naturally, a 20-ton shovel must have a dipper limited in size to the weight of the shovel. Thus, a 20-ton shovel has a dipper ranging in capacity from ½ to ¾ cubic yard.

This means that this size shovel can handle only rocks up to ½ cubic yard or a little more. A 30-ton shovel has a cubic-yard bucket, a 35 to 40-ton shovel will use a 1½ to 1¾-yard dipper. A 60-ton shovel will use a 2 to 2½ cubic yard bucket, and so on up until dippers of even larger capacity than 5 cubic yards are used.

One great item of saving effected in using a power shovel to load blasted rock in a quarry is that large rocks can be picked up without expending money for labor and explosives to break up boulders. This cost can vary from 5 to 25 cents per cubic yard, so that the money thus saved amounts to a considerable sum.

It can be seen that this must be one determining factor in deciding upon the size of the shovel. The larger the dipper, the less breaking of boulders need be done and the greater the yardage that the shovel will handle in a day, for every dip of the shovel will mean two or three or more times the amount of rock loaded. Naturally the

size of the boulders handled must depend upon the size that will go into the crusher, but many modern crusher plants will take boulders from 1 to 5 cubic yards or more in contents.

In addition to the size of the crusher, the size of quarry car may limit the size of the boulders; but generally speaking, when power shovels are installed in a quarry, the cars are changed to suit the shovel.

The crusher plant is not only a factor in determining the size of the shovel to be used as regards the largeness of the boulders it will take, but it likewise decides the output of the shovel. It would not be good business to install a shovel of 40-ton capacity with a 1½-yard dipper handling possibly a thousand tons of stone a day, when the crushers could crush only 200 or 300 tons, and would take only stone of a few cubic feet in contents.

Quarries with smaller crusher plants seldom install shovels, but if they do, it is not long before operators find it expedient to rebuild their crusher plant and install larger primary crushers. One improvement in a quarry is generally followed by others.

Another great advantage of a larger shovel over the smaller one is the width and height of the ledge that can be handled from one setup of the machine. The height is not absolutely governed by the size of the shovel, for blasting can bring down a high ledge so it can be handled even by a small shovel. However, there are advantages to this, and ledges today are being worked so that there is only a reasonable height of ledge overtopping the boom of the shovel. The width of cut is governed absolutely by the machine. Thus, with a 40-ton shovel it is possible to work the ledge so that for every lineal foot of excavation there will be twice the yardage of that for a 20-ton shovel.

This means much in shovel operation, as the machine will make moves in excavating, and the crushers can be fed with greater regularity. The blasting can be done to greater advantage.

In considering the blasting, the first item is the drilling of the holes. With well drilling machines being used—and this should be the method in connection with steam shovels—the drilling of deeper holes within reasonable depths is less than drilling a larger number of shallow holes. The extra depth and width will allow of greater spacing, so that a large shovel will save considerable money in drilling holes. This may mean a decided saving during a season's work.

With deeper drill holes and wider spacing, the holes can be sprung more, so that larger charges of explosives can be used. This, too, will mean a saving, as the blasting can be done much more efficiently, for a greater tonnage of rock can be loosened and thrown down per pound of explosive used. This in itself will mean the breaking up of boulders and will allow the shovel to operate much faster.

These are the principal reasons for selecting larger sizes of shovels for quarry work. For quarries producing 500 tons or more a day, the shovels should be 40 tons in weight and upward. For a 1,000-ton production, 60-ton shovels or larger should be used.

Instead of purchasing the smallest shovel possible, the idea should be to get the largest machine possible to suit the crushing plant. The money available should not entirely govern the purchase, for the shovel will stand as security, to borrow the money, and the larger size of shovel will quickly pay for itself.

The charter of the Kosmos Portland Cement Company, Louisville, Ky., has been amended, by virtue of which the company's capital stock will be reduced from $1,500,000 to $925,000. They have also acquired the right to sell salt and coal.

New Plant at Easton

Company Making a Number of Special Mineral Products

THE Rock Products Company have just recently built a plant at Easton, Pa., where they are manufacturing roofing granules made from an unfading augite rock found in that locality. This rock is a magnesium aluminium silicate of a very hard texture. The plant is so constructed that while making this roofing the larger aggregates are separated out for stucco and terrazzo in standard sizes.

The Rock Products Company have also just completed a plant at their serpentine quarry where they have one of the largest deposits of beautiful green serpentine found in this country. This plant is designed so as to produce the various standard sizes of granito and terrazzo as well as the stucco size in various shades of green consisting of yellow-green, light green, royal green and their so-called Irish green, which is practically translucent in color and of a semi-precious nature.

This company is also operating a large grinding plant in the city of Phillipsburg, operated by electric and water power from the Morris Canal, where various grades of magnesium silicate are produced, some of which are very white in color and used as fillers for paint, paper, etc. They are also producing what was known for years on the market as the "Warne China Clay" and various other grades of talc.

A new company is the Nelson Stone Company, Inc., Buffalo Station, Va., whose maximum capitalization is $50,000. This project is in the hands of N. A. Bodine, president; B. N. Bodine, secretary, both of Buffalo Station; and S. R. Norman, Washington, D. C. They will quarry, crush and deal in stone and conduct a general mercantile business.

Nothing Slow About Iowa

A MEMBER of the editorial staff of PIT & QUARRY has just returned from a survey of sand and gravel, crushed stone, and cement developments in Iowa.

It was especially gratifying to note the feeling of optimism that prevailed throughout the state, in spite of the fact that freight rates are still a millstone on the industry, and that there is some reason to believe the coal interests will again receive preferential car supply. The fight is still on, however, and must before long result in justice to aggregate producers.

Davenport is to have two new cement plants, to cost approximately $6,000,000 each. The Hahn-Muscatine Company of Muscatine is about ready for operation, and their screening device, which is an absolutely new idea along this line, will be the subject of an interesting article in a subsequent number of PIT & QUARRY.

The Pyramid Portland Cement Company, of Des Moines, is nearing completion, and will furnish material for another interesting story.

The Portland Sand and Gravel Co., of Des Moines, whose Valley Junction plant is reported elsewhere in this issue, is opening its new plant at Booneville, Ia.

The Northwestern Gravel Company, of Des Moines, which has been operating a plant at Lake View, Ia., is extending its operations with two new plants, one at Gifford, and one at Grand Junction.

The P. A. C. Sand and Gravel Co., of Boone, Ia., is enlarging its plant and installing a crusher plant and other new equipment.

The Federal Portland Cement Company, of Ft. Dodge, is a $7,000,000 concern. Its plant at Rutland will begin operation this summer, with a capacity of 10,000 barrels a day. The company intends also to manufacture

hydrated lime, and expects soon to erect a gypsum plant in Ft. Dodge.

The Clear Lake Sand & Gravel Company, of Clear Lake, Ia., began operation on April 15. This is an interesting plant which will receive attention in an early issue.

The Niles Gravel Co., of Charles City, Ia., is installing five concrete storage bins. This feature is so unusual that it is being watched with a good deal of interest by neighboring producers. As soon as these bins are finished and the plant in operation, PIT & QUARRY will furnish its readers with a complete description of it.

The Northwest Portland Cement Company, was recently organized at Mason City, Ia., and will start construction at once of a $1,500,000 plant.

The Ideal Sand and Gravel Co., of Mason City, is opening up a limestone deposit, and installing new equipment in expectation of increased business.

Taken as a whole, Iowa producers are "up and going" and the immediate future of the industry looks much brighter to PIT & QUARRY as a result of this trip.

Limestone Products Company, whose main office is at 608-10 Randolph Building, Memphis, Tenn., is a new $400,000 corporation. They will produce limestone, crushed stone and fertilizer. They contemplate the erection of a plant at Black Rock, Ark., with William E. Arens in charge as superintendent. John T. Woodruff, located in the Woodruff Building, Springfield, Mo., is president.

The Newaygo Portland Cement Company, Newaygo, Mich., re-elected the following officers: President and treasurer is Clay H. Hollister, vice-president, Wilder D. Stevens; vice-president and general manager, J. B. John, who is also superintendent of the plant; secretary and assistant treasurer, W. A. Ansorage. The directors are the above named officers and the following: P. H. Travis, Fred Vogel, Jr., of Milwaukee, Wis.; H. D. Higginbotham, Joliet, Ill., and Mrs. Daniel McCool.

More Highway Data

Further Reports on What Various States Are Doing

THE estimated road building program for Ohio for 1921 includes 500 miles of roads of all types, the great majority of which is hard surfaced, at a contract price of $15,000,000.00. There is maintenance and repair work on 3,500 of highway at a contract price of $3,500,000.00. There were 743,583 miles under construction on January 1, 1921, from previous contracts, contract price, $22,509,371.07.

The State of Maryland has awarded contracts for 12.91 miles of concrete highway, to cost $33,650.00 per mile. The amount of mileage still to be contracted for is uncertain as yet, owing to appropriations. There are 39.89 miles of hard surfaced road carried over into 1921.

The Michigan State Highway Department reports that no contracts have been awarded so far in 1921 owing to uncertain finances, which have also made it impossible to formulate any definite program.

The department is now advertising for bids on a considerable mileage, and they expect this to be one of the largest road construction seasons in the history of the department.

There are 661 miles held over from last year.

Montana reports no contracts let to date.

The program for 1921 includes 200 miles of gravel road at an estimated cost of $1,700,000.00 and 12.5 miles of paved road at an estimated cost of $600,000.00.

349 miles were carried over into 1921.

Madeline Gravel Company, Bennettsville, S. C., has received charter. J. J. Heckhart, president; George W. Dudley, secretary, and B. M. Edwards, treasurer. $5,000 capital.

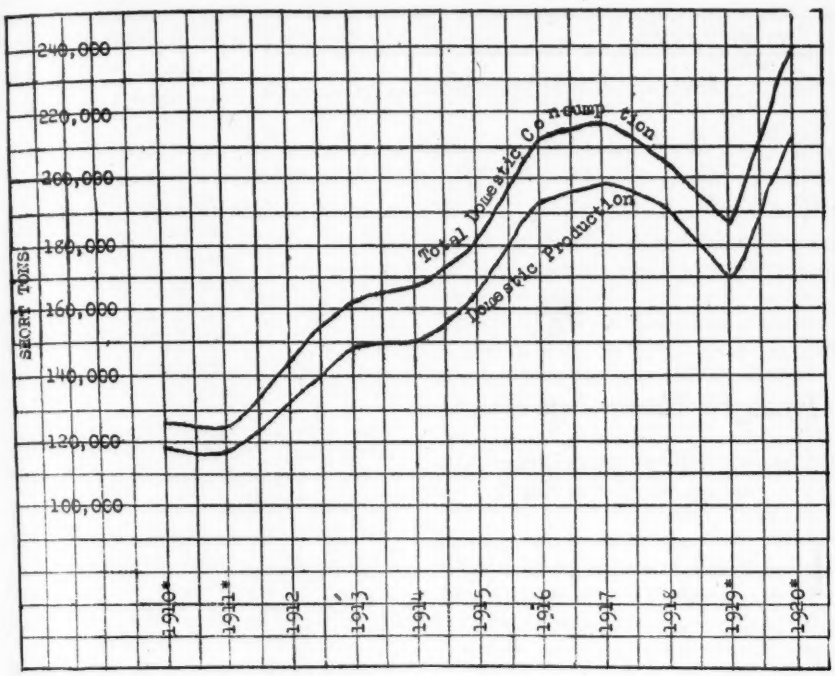
New Talc Grinding Capacity in the United States

BY RAYMOND B. LADOO
Mineral Technologist, Bureau of Mines

THE talc milling capacity in this country is being expanded so rapidly that it becomes a matter of importance to inquire into the probable effects that the additional production to be expected from this increased capacity may have on the industry. From information now available it seems that at least nine companies have recently built, are now building, or contemplate building increased talc grinding capacity to the extent of about 500 tons per day or 150,000 tons per year. Of this new capacity, 235 tons per day is already built, though no production resulted from it in 1920; 85 tons is now under construction and nearing completion; while 180 tons is contemplated. In addition to these tonnages definitely accounted for, there are several other companies which are considering expansion and several new companies recently incorporated.

The accompanying chart shows the domestic production of talc and the total indicated consumption (production plus imports) in short tons since 1910. From this chart it will be noted that the estimated total consumption of our maximum year, 1920, was about 237,000 tons or 790 tons per day. But of this total about 24,000 tons was imported, reducing the domestic production to about 213,000 tons, or about 710 tons per day. Unless a high protective tariff on talc is enacted, imports will increase rather than decrease. Thus the maximum consuming capacity for domestic talc to date may be taken at about 700 tons per day. However, it can not be assumed that 1920 conditions will be repeated in the immediate future. The new capacity of 320 tons per day which may be expected to be in operation this year, would add to our peak production more than 45 per cent, and, with the contemplated 180 tons, more than 70 per cent. The increases over the previous maximum production of about 198,600 tons in 1917 would be respectively 55.5 per cent and 83 per cent.

The erection of some of the new mills may be justified by the fact that through improved milling methods their product will not be forced to find new markets, but will merely replace that from older but less efficient mills. Also, some addition to grinding capacity is undoubtedly justified by the normal increase in demand and by the abnormal increase of the last few years. However, after making due allowance for these considerations, it seems evident that the great increase can not be absorbed through our present channels of consumption, and additional construction seems unwise at this time unless definite new markets are first established. Instead of increasing the plant capacity, a better policy would be to spend available capital in improving mines and mills to produce a better product at a lower cost, to consolidate small inefficient companies into larger and more efficient units, and to pay for research, investigation and publicity which would develop new markets and uses and expand older ones. Regardless of further additions to capacity, it does not seem probable that present plants can run to capacity unless new uses and markets are developed. Despite the record demand for 1920, several long established mills were unable to run at



Talc Production and Consumption in the United States.

anywhere near their capacity on account of power shortage, ore shortage, etc. While it is impossible to run all mills at their theoretical capacity, it is evident that present mills when run at even average efficiency would produce far more talc than present markets can absorb. Running mills at a small fraction of capacity is very wasteful and expensive.

This difficulty is not found in the talc industry alone, as is evidenced by the condition of the zinc, asbestos and other industries. The zinc producers through the American Zinc Institute have adopted an agressive campaign of research and publicity to expand their market. The asbestos interests have recently formed an association of companies engaged in the mining, jobbing, manufacturing and finishing of asbestos and asbestos goods, known as The Asbestos Industries. The purpose of this organization is to expand the markets and uses of asbestos through investigation, research and large-scale, educational publicity. The Talc and Soapstone Producers' Association can do much to remedy the condition of the industry if it has the proper backing and support, but so far this support seems to have been lacking.—Reports of Investigations, U. S. Bureau of Mines.

Farmers' Marl & Lime Company, 324 MacBain Bldg., Roanoke, Va., a new company, will develop a deposit of fresh water marl near Vesuvius, Rockbridge Co., Va. A grinding plant will be constructed, which will have a capacity of 150 tons per hour. This marl will be produced for agricultural purposes, and crushed stone for road building and general construction will also be put out by them. Charles S. Schubert, at the above address, is president, while E. A. Schubert is consulting engineer.

CLIFTON, KANS

FROM / ROUTE	K.C.	Atchison	Superior		
R I	7½	6½			
MOP	9½	6½	7½		
UP	9½				

Freight Rates on File

Missouri Valley Association Develops Real Service

THE Missouri Valley Association of Sand and Gravel Producers has developed, through its traffic department, a card index rate file which is proving of immense value to its members.

The association has gathered data covering competitive rates between about 8,000 points in the three states, Kansas, Missouri and Oklahoma. They have classified these, card indexed them, and supplied each member with a complete card index file. This makes it possible for a producer to know exactly and without delay, the rates from his plant to any other shipping point, and also, the rates a competitor figures in on his estimate. They cover all points a producer can reach within two cents of a competitor's rate. If any producer desires cards where there is a difference of more than two cents in the competitive rate, the association is prepared to furnish them from a master file.

The association is constantly correcting its master file as changes take place, and corrected cards are immediately sent to all members.

The traffic department is prepared to give correct interpretations of tariffs, where question arises, and handle any and all claims regarding switching charges, demurrage charges, rate matters, and other traffic problems.

The traffic department is in charge of Mr. E. H. Hogueland, a traffic man of long experience, who has specialized in handling rate cases before state and government commissions, and has represented numerous industries in the Southwest. He is assisted by Mr. H. E. Woolverton, who has had about seven years' experience as rate man with the Santa Fe Railroad and different shippers' organizations, making a well organized department.

The expense of handling these cases, unless of an individual character, is borne by the Association.

The Association is now preparing information in anticipation of bringing before the Interstate Commerce Commission a joint rate case, which will be similar to the one recently brought by the Pennsylvania Sand and Gravel Producers Association.

Elliott, Mo.

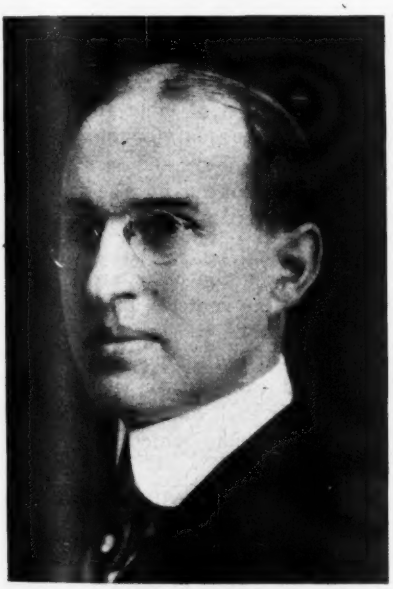
FROM / ROUTE	K.C.	Tulsa	Wichita	Boonville	
Frco	7½	7½	8		
MK&T	11			5½	

New Man for Illinois

Concrete Aggregate Association Appoints J. D. Pierce Executive Secretary

MR. J. D. PIERCE, of Chicago, has been appointed executive secretary of the Illinois Concrete Aggregate Association to succeed Mr. Ben Stone, whose resignation was reported last month.

Mr. Pierce, who has been a business



J. D. Pierce

man with considerable manufacturing experience, is also a trained association secretary. He organized the National Association of Bedding Manufacturers, increasing its membership from the original 40 to 214 in three and one-half years. He instituted a zone membership system, which was highly successful in stimulating local interest in national affairs.

Since assuming his office, Mr. Pierce has laid the foundation for a similar system in the Illinois Concrete Aggregate Association. In the weekly Bulletin of April 19th, he made some observations which, if heeded, must result in much good to any association. Following are a few extracts from the Bulletin:

"No association of business men can hope to get the greatest benefit for its members without well attended meetings."

"Meetings are the only means of acquainting new members with association methods, and transmitting information of mutual benefit."

"Every producer should know, and has a legal right to know, what his competitor has been doing."

"False reports, quoting from men who are trying to buy your goods, are the most dangerous factors in business cooperation."

Mr. Pierce also built up a traffic association among furniture manufacturers.

Mr. Pierce lives in Winnetka, a North Shore suburb of Chicago, where he is president of the Winnetka Civic Association, and a member of the City Council. He is also president of the Business Secretary's Forum of Chicago, composed of association managers.

The Moss Devoy Lime & Stone Company, Memphis, Tenn., composed of men interested in the ownership of the Moss Devoy Brick Company, near Memphis, and also of John A. Denies Sons Company, have secured charter to work with a capitalization of $50,000 in the operation of the lime plant located at Saint Joe, Ark., and known until recently as the Star Lime & Zinc Company. Louis J. Moss is president of the new concern. It is the intention of the company to enlarge the capacity of the plant so as to double it within a short time. Already a plant for the manufacture of wire hoop barrels has been added, to take care of their cooperage requirements. The company's products are Star brand lime, crushed stone and agricultural lime.

Using Trucks in Quarries

DURING the past decade the use of auto trucks in nearly all industries has been extensive, and with this increased usage quarrymen have kept pace; yet, rather singular to relate, trucks have not been used to any extent by quarrymen to haul stone from the ledge to the crushing plant.

There may be several reasons for this. One is that most quarries are already equipped with some type of transportation machinery, in most cases cars and tracks, and an operator sees no reason for selling his old equipment and purchasing new.

A second reason is that most business men are prone to follow precedent and use machinery that has been tried out by others, few men being willing to be pioneers when it comes to spending money.

A third reason is that much loading of stone in quarries is done by hand, and high trucks are not practicable to be loaded by this method.

However, this objection is not a valid one when steam shovels are used in connection with picking up the blasted rock at the ledge. The height of the truck makes little difference with a power shovel.

It would certainly seem logical and practical to use trucks in quarries when steam shovels are used for loading. The writer has heard of a few isolated cases of using a truck or two for this purpose, but has not been able to get any authentic data as to any extensive use of a number of trucks over a long period of time.

In construction work trucks have been used for hauling both earth and rock in connection with steam shovel loading. In some cases a few trucks have been sufficient to keep the shovel going when the haul was short, but in other cases a large battery of trucks have been used. Some years ago in Newark, N. J., sixteen large trucks were used on a job serving one steam shovel. Here the haul was fairly long. The trucks can keep the shovel busy, and can also dump its load as easily as cars. Thus there should be no difference in handling rock, in quarries and on construction jobs. If the truck has proven successful for construction jobs upon rock excavation, it should be likewise for use in quarries.

The question should resolve itself into one of costs—the cost for plant and the cost of operation.

In each quarry there would be a decided variation as to such costs. Where trains are operated, there is the cost of the dinkeys, the cars, the rails and ties and switches. For operation there is the cost of labor for running the trains, the maintenance and repairs on the dinkeys and cars, the cost of fuel, the upkeep on the track, as well as the continual shifting of track to suit the work.

With trucks the costs are those of purchasing the vehicles, fuel and labor and maintaining the trucks. For any proposition it is thus possible to figure the capital expenditure, and the cost of operating each outfit for a day, and be able to decide which will be the cheaper.

PIT AND QUARRY will be pleased to have any operators who have used trucks for this purpose to tell in these columns the details of the number used and of their experience. Such information would no doubt be welcomed by a number of the readers of this journal.

The business of the McGrath Sand & Gravel Company, with main offices at Lincoln, Ill., is on the increase, necessitating the establishment of sales offices in Springfield and Bloomington, Ill. The Springfield office will be in charge of Charles L. Luther, formerly assistant traffic manager of the Rockford Shippers' and Manufacturers' office, and Paul M. Coogan will be at the head of the Bloomington office.

Put Ideas Into Practice

Little Story of a Columbus Sand and Gravel Man

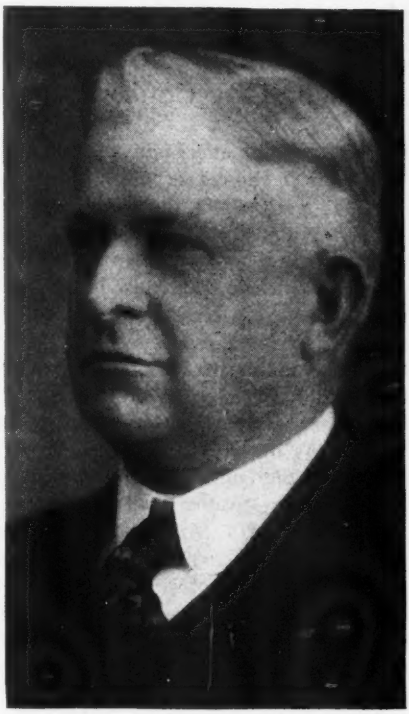
ABOUT nine years ago a man with ideas all his own was managing a sand and gravel plant in Columbus, Ohio. This man suggested improvements, time and time again, which he thought would speed up production at less cost, but his employers were satisfied with their production and earnings. He felt he was doing an injustice to himself and to the gravel and sand trade, in continuing longer in his managerial position, so, organizing his own company, he started building a sand and gravel plant according to his own ideas.

This man was Herbert R. Gill, president of the Island Sand & Gravel Co., sand and gravel producers, and now also president of the Columbus Consumers Supply Co., dealing in builders' materials.

Mr. Gill asserts that he was criticized at the time he went into business for the expense incurred in getting a better grade of his products. "But I believed there is always a sufficient number of discriminating buyers who will pay for good products," said Mr. Gill.

The Columbus Consumers Supply Co., 315 North Fourth street, an outgrowth of the Island Sand & Gravel Co., is a distributor for the Island Sand & Gravel Co.'s products, as well as all kinds of building materials. For maintenance of a fast and speedy service known as the "Zip-Zip" service, they own and operate 18 trucks, 20 thirty-ton railroad box-cars, a centrally located material yard and employ a force of about 50. Six salesmen call upon the building trade, each one being equipped with a "Zip-Zip" auto.

Robert M. Miller, general manager, declared that "the year 1921 will be a very busy one for contractors and material men, and the Columbus Consumers Supply Co. is making improvements, getting in large stocks of materials to meet the heavy demands.



Herbert R. Gill

The Blue Ridge Slate Company, at Esmont, near Charlottesville, Va., rumor has it, is contemplating rebuilding its mill, which on January 30 was destroyed by fire, resulting in a loss, including equipment, of about $75,000. It was expected that operations could be resumed in March. About 50 men had previously been employed at the plant.

Philip T. King, for several years with the New York sales office of the Ohio Locomotive Crane Company and the Bedford Foundry & Machine Company, recently opened his own offices to deal in cranes and contractors' equipment, and is now permanently located in Suite 626, 30 Church street, New York City.

Ideal Sand and Gravel Company

Mason City Concern Soon to Open Limestone Deposit

THE rapidly increasing use of concrete in the construction industry, has necessarily increased the demand for aggregate, and the fact that clean aggregate is known to make stronger concrete, has caused specifications to be more strict.

The Ideal Sand and Gravel Company is located at Mason City, Iowa, which is the hub of several railroads, and offers ample facilities for shipping in almost any direction.

An area of about 260 acres of deposit is now being developed. By reference to the plat, Fig. 1, it will be noted that the operation is carried on from three different portions of the deposit; one drag-line is located at the southern extremity, one at the north, and a third, Number 2, is beginning on the section of land shown.

The deposit is quite variable. At the North end of the tract, the material will run approximately 80 per cent of ¼-inch and over. In the center of the tract, it will run 50 per cent ¼-inch and over, and at the south end it will average 20 per cent ¼-inch and over. This varying percentage of coarse material makes possible the production of several different sizes and grades.

Strip and Excavate with Drag-lines

Draglines are employed first to strip the land of about one and one-half feet of soil, the stripping being thrown back on the depleted area. They are then ready to dig gravel, which is placed in open-top, hopper-bottom, 50-ton cars built especially for this service. Of the three drag-lines, one is a Mundy with 60-foot boom and 1½-yard bucket, one a Monighan with 70-foot boom and 2½-yard bucket, and one an American Hoist and Derrick Company's derrick with 60-foot boom and 2½-yard bucket. All are served by standard gauge railroad, so that all cars and locomotives are standard gauge. An idea of the methods of loading the material is given in Figs. 2 and 3. It is also possible to load material from the pit for railroad ballast or highway surfacing, a car of loaded material being shown in Fig. 3 loaded and ready to move out.

After being loaded the material is transported by means of a 40-ton Baldwin locomotive to the central track hopper, as shown in Fig. 4, where it is emptied into the hopper, the cars being provided with a drop bottom dump. From the hopper, the material is elevated by a 30-inch belt conveyor, which is the main belt shown in Fig. 5. At the head of the belt, the material is thrown directly upon a revolving screen with 2-inch openings. Material that is rejected from this screen is passed onto a No. 6 Austin gyratory crusher, and material passing through this crusher is elevated by means of another belt to the small structure, shown in the middle distance of Fig. 5, where it is returned to the belt conveyor at the left. This conveyor carries the material to another 2-inch screen and that which passes through the screen is carried to the screenings of the first rejection screen by means of chutes. Gravel that has passed the rejection screen and the crushers is discharged to a 26-inch Dickbelt, 233 feet long, shown in Fig. 6, which elevates it to the top of the washing bins.

Washing Bins

At the head of this belt the gravel meets a stream of water flowing at

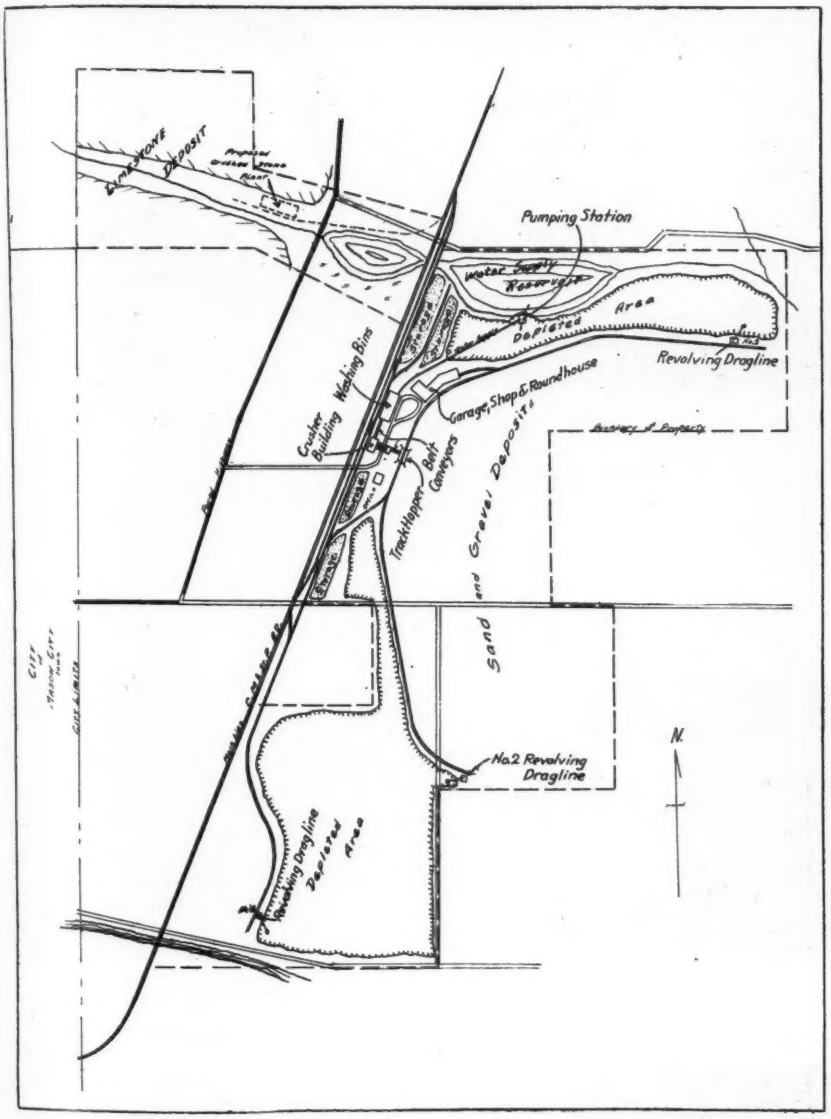


Fig. 1—Layout of Plant of Ideal Sand and Gravel Company.

the rate of 1,600 gallons per minute. The gravel and water, at this point are divided into two parts, each being fed into a duplicate set of screens as shown in Fig. 7. The screening plant was designed by Link-Belt (Dull), and provides for four separations.

Waste water, which has a small amount of real fine sand, is carried off by means of a wooden flume. This flume empties into two concrete settling basins, where the sand is allowed to settle, and the silt, waste matter and water are wasted. The

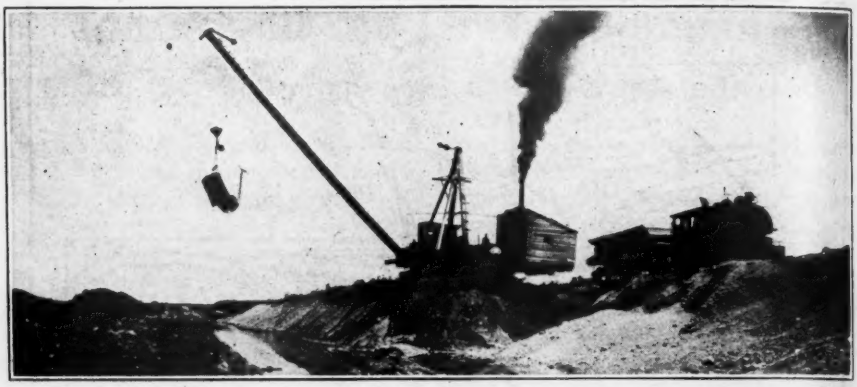


Fig. 2. American Hoist & Derrick Co.'s Derrick.

Fig. 3. Monighan Drag-line Derrick.

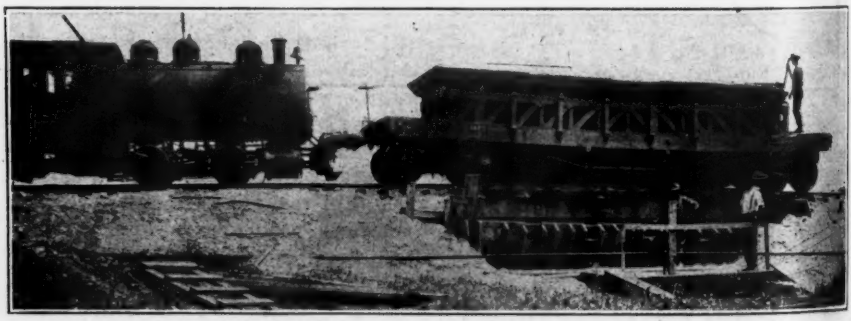


Fig. 4. Ready to dump a car spotted over Hopper, from which a belt conveyor leads to crusher house.

Fig. 5. Belt Conveyor, elevating material from hopper to crushing house.

flow of this material is changed alternately from day to day, thus allowing the sand in one basin to settle while the other tank is being used. The material is then taken out with a locomotive crane and stock piled. It is used in asphalt paving, molding sand and for various similar purposes.

Water supply is obtained from a natural reservoir and also from seepage water from the bottom of the gravel deposit. This is pumped to the washing plant by a Gould 6-inch 1,000 gallon and an American 4-inch 600 gallon pump. A 12-inch Universal joint pipe-line, 1,500 feet long, is used to supply the wash-house with water. In Fig. 8 is shown the railroad loading side of the washing plant. Material is loaded directly into the cars from the side and it is possible to load either one grade of material in a car or a mixture of any number of sizes. A 20-ton Davenport locomotive is used in switching the cars. The locomotive crane is used to stock-pile material that is not shipped. From the other side of the bins trucks and wagons may be loaded. The capacity of the plant is 375 tons per hour.

Storage Facilities

Ample storage of sand and the various sizes of gravel is shown in Fig. 9. The accessibility of these tracks and the facilities they offer for storage and reclaiming of material are unsurpassed. This is one of the special features of the plant. From 50,000 to 75,000 tons of material are kept in these storage yards, enabling the company to ship at any time trade de-

Fig. 6. Crushed material on its way to the Wash House. Conveyor belt 233 ft.

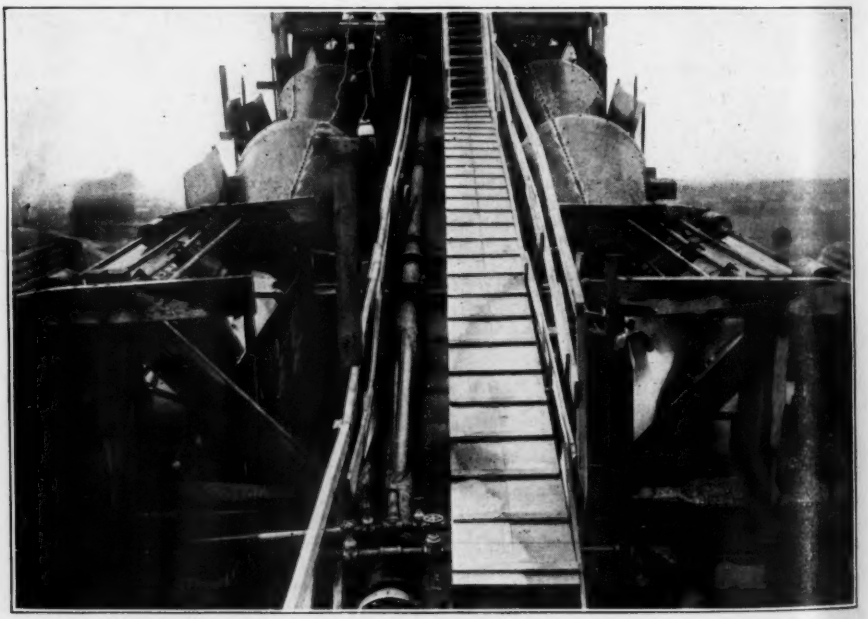


Fig. 7. Link-Belt (Dull) Revolving scheens.

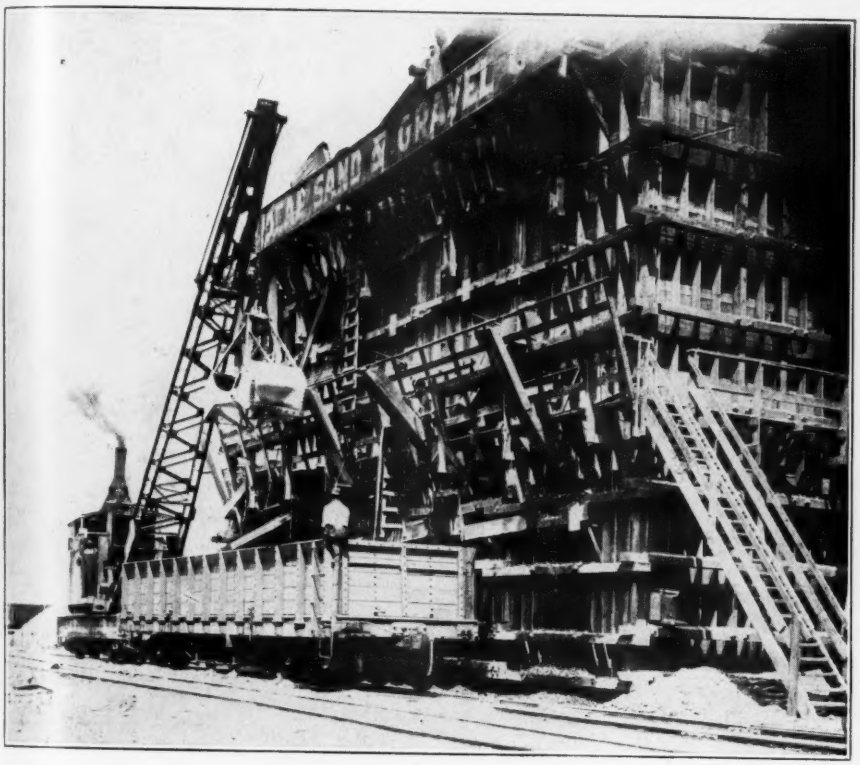


Fig. 8. A close-up view of the Washing plant, and Ohio locomotive crane.

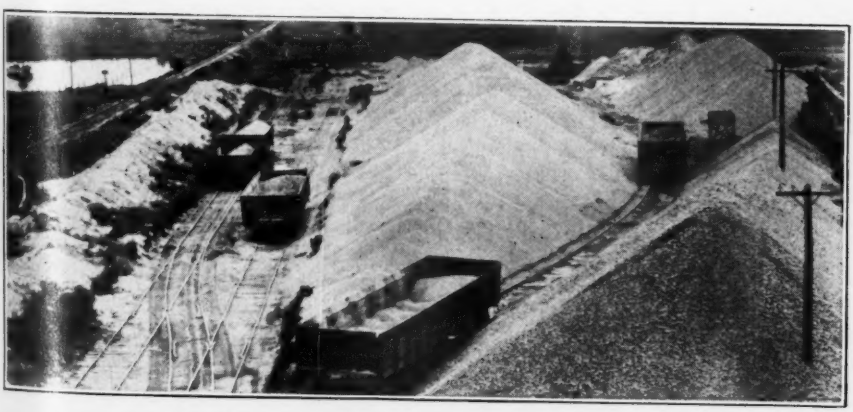
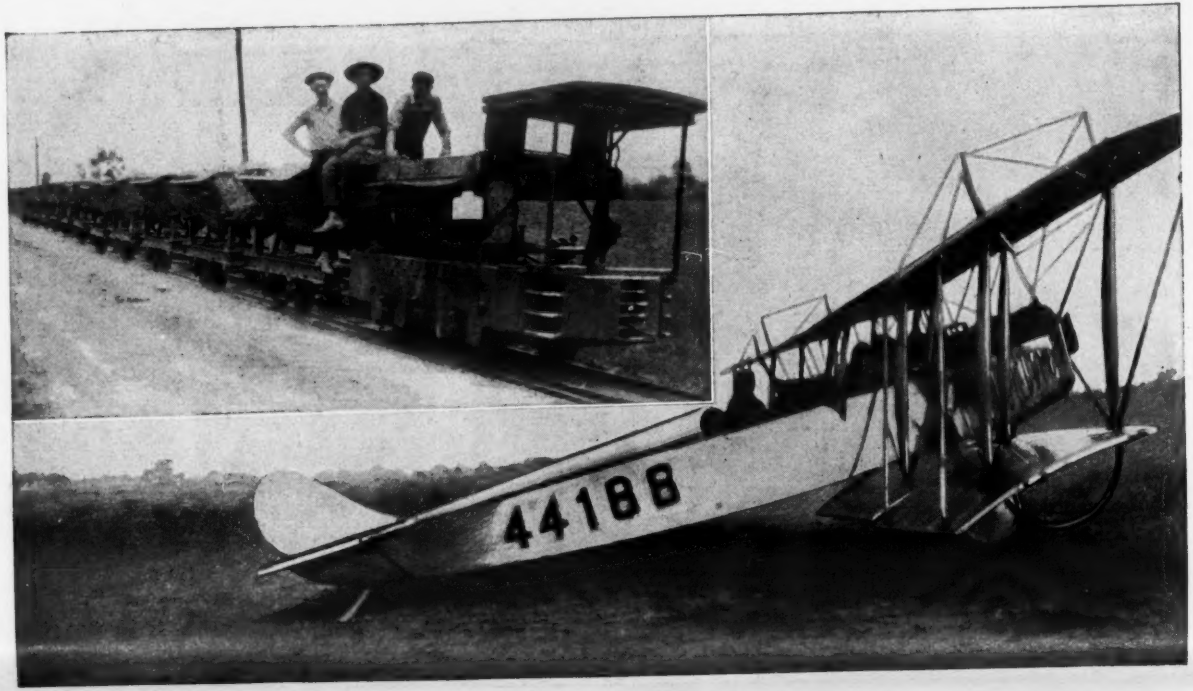


Fig. 9. Storage Piles of Ideal Sand & Gravel Co.

PLYMOUTH



a 3-ton Plymouth Gasoline Locomotive, for use in water bound road construc-

pense with the Plymouths would mean haulage problems hard to solve."

a 3-ton Plymouth Gasoline Locomotive, for use in water bound road construction. It made five ten mile round trips daily, hauling twelve yards the load, "putting it all over a nine-ton steam," as Mr. Hutchinson put it.

In 1917, Mr. Hutchinson purchased another 3-ton using in the construction of the Selfridge Aviation concrete road twenty feet wide.

pense with the Plymouths would mean haulage problems hard to solve."

Mr. Hutchinson is both a Plymouth and airplane enthusiast, and is shown in the rear seat of the plane above ready for an inspection trip over his road job. He is probably the only road contractor making such use of the airplane.

Ask us for Special Road Bulletin.

The Fate-Root-Heath Co., Plymouth, Ohio, U. S. A.

PLYMOUTH

Gasoline Locomotives

mands. An Ohio locomotive crane stores and reclaims the material.

To Open Limestone Deposit

The company is now engaged in opening a stone quarry, shown in the upper right hand corner of Fig. 1. This quarry will have about a 35 foot face, of which about 15 feet is calcium carbonate and the remainder is dolomite. A crusher is being installed, with all auxiliary equipment, and agricultural limestone will be pulverized. The capacity will be about 35 cars a day, and the plant will be in operation early this summer.

The plant is ideally located for the manufacture and distribution of agricultural limestone. It is in the center of the richest farming district in the country, and as farmers are rapidly awakening to the necessity of fertilizing if productivity of the land is to be maintained, the firm should have no difficulty in finding a ready market for their product.

The organization that handles the management of the business is made up of the accounting department, traffic department, administrative and operation departments. F. A. Stephenson is president of the company, E. G. McGowan, vice-president and treasurer, F. D. Pearce, general manager, and C. E. Thomas, superintendent in charge of operations.

The well-known phosphate beds located east of Big Pine, Cal., have been purchased by the Big Pine Fertilizer Company, for a reported price of $15,000. The deal includes 1,500 acres of land, said to be rich in phosphate content. The active promoter of this enterprise is George W. Abel, formerly with the Never Rest Mining Company. Mr. Abel will be president and treasurer of the new company.

The Ludlow Sand & Gravel Company, Springfield, Mass., has been chartered with a capitalization of $20,000. Charles H. Wright, John J. Toole and Roswell J. Powers, all of Springfield, are the moving spirits.

Unusual Canada Quarry

Queenston Gravity Plant Operates All Winter

THE Queenston Quarry Co., Ltd., was organized in 1897 for the purpose of quarrying and cutting building stone, at St. Davids, Ontario, Canada, on property that had been worked by various concerns for the past thirty years. The company has filled many large contracts for building stone, among the largest being the power plants of the Niagara Falls Power Company, both on the American and Canadian side.

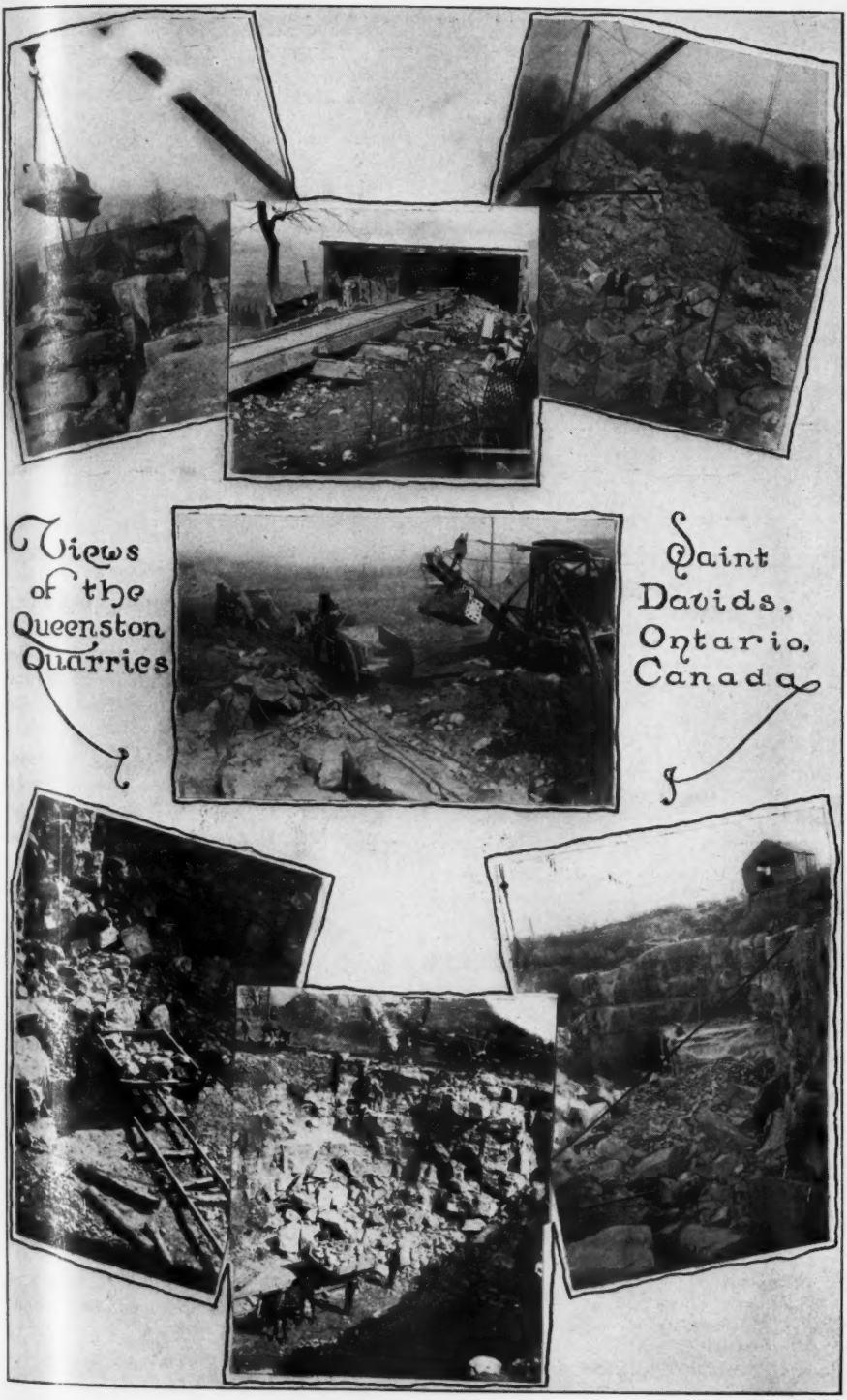
The business has grown steadily, and while no large contracts were obtained during the war years, the company now has a large and widely scattered list of customers.

The quarrying operations up to the present have been carried on in one place, and the stone for crushing obtained from another opening, where the whole face of 30 feet was utilized, which included the blue and the grey limestone. The crusher quarry is on top of the escarpment only along the face, where it is handy to deliver to the crusher on the hill side, and to the railroad at the bottom. The analysis of the grey limestone shows Cal. Carb. 56.39 per cent, and Mag. 39.16 per cent. or a total neutralizing value of 104 per cent, as agricultural limestone.

The stone for crushing is of a hard crystalline dolomite character, very suitable for road work and concrete.

The overburden is taken off with a Keystone excavator, and the stone is drilled with a tripod and jack-hammers. It is loaded into 2-ton cars by two-men gangs at a contract price per ton, hauled to the crusher over a 36-inch gauge track by one horse, and dumped at the crusher stop-block endways into the crusher.

From there the whole course of the stone is down hill by gravity, except


Views of the Queenston Quarries
Saint Davids, Ontario, Canada

Plant of
DES MOINES SAND & FUEL CO.
DES MOINES, IOWA.
1-General View, Dredge, Discharge Pipe and Storage
2-Loading Cars
3-Inside View Electrically Operated Dredge
4-Suction Nozzle
5-Dredge Elevator and Discharge Hopper
6-Close up Dredge and Nozzle Boats
"Clean Aggregates for Permanent Concrete"

the tailings, which, after passing through the Symons recrusher, are elevated to the screens again and put through.

The whole plant is electrically driven with two 40 H. P. motors, and the two conveyors by two 7½ H. P. motors. From the bottom of the bins, chutes deliver to a horizontal conveyor belt 20 inches wide, carrying the product out 80 feet toward the tracks. It is then discharged down a chute into a hopper 25 feet below, and is fed from there onto a 20-inch conveyor belt 150 feet long, which is built over the main line of the Michigan Central Railroad and the loading sidings, and discharged through a long pipe, which can be swung in a half circle, to the storage piles below.

In the middle of this conveyor belt a tripper is arranged so that the course of the stone can be changed to go through a pipe into the cars directly below. The pipe at the end of the conveyor also feeds into wagons or motor trucks as desired, and a large percentage of the output last year was sold in this way for work on the Provincial Highways, a short distance away. The stone is screened to 3-inch, 2-inch, 1-inch, ½-inch, and screenings, and contained in five bins, directly from the crusher.

The plant is centrally located for the district and serves one of the most populous districts of Ontario. The capacity is 250 tons per 10-hour day, and the estimated capacity for the present year is 40,000 tons.

The plant operated all winter, losing only two days on account of bad weather. The company's ability to operate all winter is due partly to their ability to dispose of their product out of the bins each night during freezing weather, either by car, team or storage pile, and partly to favorable labor conditions.

The company is reorganizing with a capitalization of $250,000, and is offering preferred stock yielding 8 per cent at a par value of $100.

The general manager is Mr. R. J. Lowrey, and the head office is at St. Davids, Ont., Canada.

The equipment consists of two 10-ton derricks, a large compressed air plant and plug drills, a No. 5 Austin crusher, a Symons recrusher, 500-ton storage bins, conveyors, chutes, and a stone saw mill.

Cleanliness Is the Word

Des Moines Sand & Fuel Company Has Model Plant

THE first thing that impresses you on entering the plant of the Des Moines Sand & Fuel Co., Des Moines, Ia., is Cleanliness, and the next is order. The slogan of the company is, "Clean Aggregates for Permanent Concrete," and they believe, that to produce Clean aggregate, the plant itself must, as far as possible, be kept clean.

The barge, tool house, reapir shop, and tower are kept painted. There is no refuse lying around the grounds. The result is, that the workmen themselves take pride in keeping things clean, and in turning out a clean product.

The plant is of Link-Belt design, as is most of the equipment. A 10-inch American Manganese pump supplies the material to the washing and screening plant. Here it is screened in Link-Belt revolving screens, and graded into bins with chutes for loading into either cars or automobile trucks.

The plant is electrically operated throughout, all wiring being strung on poles to avoid possibility of accident.

The interior of the barge is shown in Figure 3. At the far end are the

electric controls, and necessary tools, which are all kept in order.

The company sends samples of its product to prospective purchasers in small mailing bags.

A thorough cost accounting system is kept, which enables them to know the cost of each detail of the operation of the various departments of the plant. This is a very important part of any business and one which is too often overlooked in the sand and gravel industry.

Mr. Gaylord M. Gray is general manager of the concern, and is also secretary of the Iowa Sand and Gravel Producers Association. M. Gray is a young man with plenty of "push," and is largely responsible for the success of the concern. Mr. Gray intends, in the near future, to install a locomotive crane to facilitate handling and storing.

Setting Screens Over Bins

IT MAY seem a simple matter to place a set of screens for a crushing plant, and in some cases it is, but it is always hard work. The frame and the perforated metal sheets are heavy and they are generally mounted on heavy timbers.

Placed on top of bins, the screens are high above the ground and must be raised into position and adjusted so that the stone will fall by gravity as the screens are revolved or shaken, being connected up with the power.

These are all considerations that are more or less self-evident, as are those of deciding upon the size of the openings in the screens.

The location and height of screens over bins is a matter regarding which many operators make mistakes. Some seem to think that the bins must be directly under the various sections of the screens. Thus the bin to receive 1-inch stone must be under the 1-inch screen. It is very nice if this is possible, but in many cases this may not be possible, or the screen section may be longer than the bin, or vice versa.

It can be seen that screens would have to be very long to have them arranged this way; so as a matter of fact stone must be shot by gravity through chutes that carry it to different divisions of the bins. To accomplish this, the screens must be of ample height above the bins so that not only the various sizes of stone can be chuted into the sections of the bins arranged for them, but also that if it is necessary to change this arrangement, there will still be room to chute the stone into the new compartments. Lacking this room to do the work by gravity, it will be necessary to carry the stone by means of belt conveyors, much more costly to install than gravity chutes, and a continual expense to operate.

It is therefore expedient in building a screening plant to put the frame of the screens fairly high above the bins, the exact height depending upon the size of the bins and the length of the screens.

Many operators likewise house in their screens. This is not necessary, unless the dust and stone must be kept dry, or the dust is objectionable to the surrounding property. The fact is that to have the screens open allows the finest dust to be blown away, preventing it from settling in the stone bins and spoiling the appearance of the stone and sometimes affecting its sale. Quarrymen, after building a house over their screens, in many cases tear down the sides. These are some facts to be borne in mind when installing screens.

Another new company is the Baltimore Lime & Stone Company, 806 American Building, Baltimore, Md. The company has issued 250 shares of stock without par value. They will operate stone quarries, manufacture lime, etc. The incorporators are Joseph R. Gunther, James A. Reynolds and Richard E. Tome.

Promise of a New Industrial Development

THOSE who studied carefully the U. S. Geological Survey Report of lime production in 1920 probably noticed that a special classification was made of dead burned dolomite, which is used mainly in the lining of open hearth furnaces in place of calcined magnesite. The use of this dead burned dolomite was the result of war conditions and a scarcity of magnesite, but there now comes a special report of the investigations of the ceramic station of the Bureau of Mines which should awaken a new and keen interest in the subject of dolomites because it contains a strong suggestion of the development of a new industry.

It has been demonstrated that dolomite can be used successfully for furnace linings, but it must be calcined at a high temperature and then in order to prevent slaking it must have added another substance which will combine with it and prevent disintegration. This is called the dead burning agent. This agent must be of such a nature as not to lower the melting point of the dolomite enough to impare its usefulness as a refractory, and it must also be an inexpensive substance.

On the progress made and the specific experiments conducted at the ceramic station the report says:

Several patents have been granted on methods of dead-burning dolomite for refractory purposes, and three or four firms have placed the product on the market under different trade names. It is sold in lump or granular form, and is mixed with slag and tar and tamped in the bottoms of furnaces. It is also used for temporary patches for furnace walls.

Magnesite brick will stand storage indefinitely without disintegration, but up to the present time, a firebrick made from dolomite which can be stored indefinitely without crumbling to powder has never been produced.

The different patented processes of preparing dolomite for refractory purposes were investigated by the ceramic experiment station. It was found that all such products would show sizes of disintegration within one week to six months.

Other methods of dead-burning dolomite were devised and tried by the ceramic station. The briquets made from the different calcined dolomites are stored in the open air and observed every week. Two of the samples prepared from calcined dolomite have been under observation for more than a year. They still appear to be sound and show no signs of disintegration. Further tests on these promising dead-burned dolomites are to be made, and if it can be demonstrated that firebrick can be made from dolomite which will compare to magnesite firebrick and will stand storage indefinitely without crumbling, it will be the means of developing a new industry of far-reaching importance.

All this sounds both interesting and promising. It is interesting because it points plainly to the possibilities of new and extensive development of dolomite industries. It is a reminder too that within recent years we have discovered that the dolomite limestones which were at first thought undesirable for soil uses have a field here too of usefulness. Now if there is to develop a new and extensive field in the making of dolomite refractories, this industry, as intimated in the report of ceramic investigations, should develop into something of far-reaching importance.

The Eddyville Sand & Gravel Company, is the new name adopted by the Morey Sand & Gravel Company, Eddyville, Iowa. This step was taken following a vote by the stockholders of the company. Wm. Hankins was elected recently as a member of the board of directors to succeed William Seed, and the number of directors was increased from five to seven. This company numbers ninety-eight stockholders. Although the work of construction will not be completed until in the spring, the company already has been shipping materials since last July, and the prospect for a record-breaking business in 1921 is very bright.

Cost of State-Made Cement

BY R. J. MORSE
General Manager, Colorado Portland Cement Company

IN AN article recently published in the Denver Post concerning the construction of a state cement plant, there are statements not in accord with the facts.

It is stated cement can be manufactured for less than 70 cents per barrel. These figures appear to have been named at random. If this legislature were to provide $550,000 for construction of a cement plant, when the next legislature convenes it will be found this money has gone about far enough to purchase the deposits for raw material, build the railroad tracks and make some payments upon contracts for equipment and buildings, and there will have to be appropriated the balance of a million dollars, to save the state the money already spent. The interest and depreciation upon the $1,000,000 investment would amount to 80 cents per barrel on the 150,000 barrels of cement the state will consume per year. Instead of a cost of less than 70 cents, the 150,000 barrel output will cost more than $2.85. Among the items of cost will be:

Interest	$ .40
Depreciation	.40
Fuel	.55
Power	.30
Repair parts	.15
Supplies	.15
Sack loss	.10
Gypsum	.05
Department heads, laboratory and citizen labor	.35
Powder and depletion of deposit	.10
Insurance	.05
Sundries, including administration. salary	.25
Total	$2.85

The newspaper article states that "the price made by the cement trust is $2.70 per barrel." This is untrue. The cement sold the state this year nets the cement companies a maximum price of $2.35 per barrel. The cement consumed by the state in 1920, bought on the 1919 costs, netted the cement companies $2.05 per barrel. The state has still due it this year 42,000 barrels at this price. Additional purchases this year have amounted to only 33,000 barrels at the higher price.

The war industries board in Washington established the price of $2.10, at which Colorado plants were ordered to sell their cement during the war. This price was made after a careful audit of our costs by the federal trade commission, over a period of several months. Everyone is familiar with the immense rise in fuel costs, labor and 35 per cent increases in freight rates since the war. The price of Colorado cement has not advanced nearly in proportion to these increases. Decrease in the selling price of Colorado-made cement will be made just as rapidly as decreases in costs will permit. Today the cement companies have reduced the price of sacks or containers in which the cement is shipped, 60 cents per barrel, and bags for which the cement companies have paid the bag manufacturers 32 cents each are being shipped out to the consumers for a deposit of only 10 cents each. This deposit is refunded upon return of the empty bag.

There is one other instance in the United States where these ideas have been tried out, to the immense loss of the city making the experiment. In 1907, when the city of Los Angeles required 1,250,000 barrels of cement for building her aqueduct, she decided that the price asked her for cement was too high. She therefore put $1,000,000 into a cement plant. Notwithstanding the

fact that there was the opportunity to operate this plant at the highest economy, because of the demand of its output at its fullest capacity, the official reports show that the cement consumed cost the city $845,000 more than the bid made by the cement companies six months before the city factory was authorized. The city-made cement used in the aqueduct cost $1.314,000 more than the engineers estimated before the plant was built. And this does not include the $1,000,000 investment standing idle for the last nine years. The actual cost per barrel of the cement produced by this plant was more than double the cost delivered to the dam of 200,000 barrels of cement purchased from a cement mill and delivered to the dam during the same time the city-made cement was being furnished. The Los Angeles cement was made by labor costing less than half the present Colorado rates, and the fuel used was oil at a very low cost per barrel, and the aqueduct investigation board on August 28, 1912, reported that "the actual net cost of cement produced is $2.48 per barrel at the mill." And yet this writer talks about producing cement at less than 70 cents per barrel in a plant that will run part of the year.

The bill in the Colorado legislature appropriates $550,000 to build a cement plant. The United States department of agriculture, in its magazine, "Public Roads," for January, 1921, estimates the cost of a cement plant somewhat larger than the contemplated penitentiary plant at $2,090,000. But this amount does not include the cost of any deposits; nor the construction of a village for the employes; nor working materials amounting to $200,000 with which the plant must be supplied upon starting. The legislature is asked to pass this bill unanimously and every taxpaying citizen is asked to get behind the measure. Therefore the legislature and taxpayers should be taken into the confidence of those behind the bill, and they should be shown whether the plant is really going to be built adjacent to the penitentiary, and if so, who is going to fight the damage suits brought by all the property holders of Canon City on account of dust from the plant, or, whether the plant is to be built out some distance from Canon City, away from the railroad and water. There should be furnished a plat of the raw materials with analyses to prove that they are cement materials; a statement of the ownership and what price is to be paid for the lands; an estimate by a reliable firm having constructed cement plants, of the cost of building the contemplated plant. Those who are seeking to have this money voted should come before the people who are to put up the money, just as other promoters would have to come with a proposition and show their credentials, that they know what they are talking about, and prove their figures showing the merit of their scheme.

If it is wise for the state of Colorado to engage in private industries, why not follow the full North Dakota plan and establish a state bank, state coal mines, state flour mills, state smelters, state saw mills, etc.? Why engage only in an industry that will require the operation of a plant during only a part of the year, with the result that costs will be increased so that the product will cost the state double what it can be purchased for from plants now operating and built with Colorado money.

Articles of incorporation have been filed with the secretary of state by the Farmers' Limestone Company, of Huntington, Ind. The company is capitalized at $10,000 and will establish a factory for the purpose of grinding or pulverizing limestone for agricultural purposes.

Road Sentiment Strong

Bills Now Before Congress Will Be Worked Into Shape in Committee

By Our Washington Correspondent

THE present Congress is believed to contain a strong sentiment for good roads. Close observers have every reason to feel, they contend, that a substantial appropriation for improving the roads in this country, in conjunction with the states, will be made before this session adjourns and probably will come in time to be available at the beginning of the fiscal year. The necessity of an appropriation being made at this time, so that the states may know as early as possible what aid to expect from the Federal Government, has been pointed out by Department of Agriculture officials and others over and over.

Then, too, the number of bills that have been introduced into the present session of Congress on the subject of good roads—bills providing appropriations and in other ways making provision for Federal aid—are taken by those interested in the subject as a good omen and as showing that the sentiment is strong in that direction. However, few of these bills, if any, will pass. They have all been referred to the House Committee on Roads and will be given due consideration, but if Congress passed them they would be so much in conflict with one another that no law that would be effective would result. The question is largely up to the committee which, although it has not yet held a meeting, will frame a bill to its own liking, in all probability, using the bills before it as a basis of the proposed legislation. It is the bill that will be framed by the committee that is looked upon as being the one that will pass. As the committee at the last session provided an appropriation of $100,000,000 for one year only, it is generally surmised that a bill of the same character will be introduced at this session, and that as such a bill passed the House, although it failed in the Senate, there is no reason to believe that it will not go through this Congress.

Members of Congress, Government officials and others interested in good roads found much in the address of President Harding to Congress to encourage their belief that Federal aid will be forthcoming and in a liberal manner. The President unmistakably favors a system of good roads in this country and is also favorable to Congress providing Government aid. In his address he said, after urging upon Congress that highway construction deserves the attention of that body:

"The highways are not only feeders to the railroads and afford relief from their local burdens, they are actually lines of motor traffic in interstate commerce. They are the smaller arteries of the larger portion of our commerce, and the motor car has become an indispensable instrument in our political, social and industrial life. There is begun a new era in highway construction, the outlay for which runs far into hundreds of millions of dollars. Bond issues by road districts, counties and states mount to enormous figures, and the country is faced with an outlay that it is vital that every effort shall be directed against wasted effort and unjustifiable expenditures.

"The Federal Government can place no inhibition on the expenditure in the several states; but, since Congress has embarked upon a policy of assisting the states in highway improvement, wisely, I believe, it can assert a wholly becoming influence in shaping policy. With the principle of Federal participation acceptably established, probably never to be abandoned, it is important to exert Fed-

eral influence in developing comprehensive plans looking to the promotion of commerce, and apply our expenditure in the surest way to guarantee a public return for money expended.

"Large Federal outlay demands a Federal voice in the program of expenditure. Congress cannot justify a mere gift from the Federal purse to the several states, to be prorated among counties for road betterment. Such a course will invite abuses which it were better to guard against in the beginning. The laws governing Federal aid should be amended and strengthened. The Federal agency of administration should be elevated to the importance and vested with authority comparable to the work before it. And Congress ought to prescribe conditions to Federal appropriations which will necessitate a consistent program of uniformity which will justify the Federal outlay.

"I know of nothing more shocking than the millions of public funds wasted in improved highways, wasted because there is no policy of maintenance. The neglect is not universal, but it is very near it. There is nothing Congress can do more effectively to end this shocking waste than condition all Federal aid on provisions for maintenance. Highways, no matter how generous the outlay for construction, cannot be maintained without patrol and constant repair. Such conditions insisted upon in the grant of Federal aid will safeguard the public which pays and guards the Federal Government against political abuses, which tend to defeat the very purposes for which we authorize Federal expenditures."

A Federal Highway Commission to direct concentration of Federal highway expenditures on roads of interstate importance has been advocated by representatives of the automotive industry who placed their views before President Harding. The imperative need of adequate maintenance to protect the enormous investments already made in highways and a broader appreciation of the entire road question as a problem in transportation rather than simply an engineering matter, were stressed, as were points which sought to show that highways are so important a part in the domestic policy of the nation as to demand a larger recognition in an administrative sense.

In this connection it was stated that in the future Federal participation in highway matters should be in the hands of a commission responsible directly to the President, rather than continued as a detail under any department. The industrial representatives were introduced to the President by Senator Charles E. Townsend, chairman of the Senate Committee on Post Offices and Post Roads, which will shortly begin hearings on highway legislation. Later the same representatives of the automotive industry discussed the highway policy with Secretary of Agriculture Henry Wallace and Director of the Bureau of Roads T. H. MacDonald. An interview was also had with Secretary of Commerce Hoover, in response to a suggestion from him that the automotive industry should appoint a "contract" committee to co-operate with his department in the stimulation of foreign trade.

The Department of Agriculture announces that 87½ per cent, or 1,262 miles, of California's highways paved with concrete has been found to be in good or better than good condition by the Bureau of Public Roads of the department after an investigation. Some months ago an adverse report was made by two of the large California automobile clubs regarding the condition of California's highway system. The Federal bureau reports that only 12½ per cent of California's highway concrete is inferior.

Market Improvement

Better Conditions Reported in East—Other Matters of Interest

By Our Eastern Correspondent

THERE is a marked trend towards improvement in the sand, gravel and crushed stone markets at New York and vicinity, and producers are making ready for anticipated demand. Not only does spring construction work show up in encouraging attitude, but road building in the eastern districts is likely to be an important factor for material sale and distribution during the coming season. New York, New Jersey and other states are arranging highway programs that will call for large quantities of crushed stone, cement and other road materials.

In the line of building construction, dealers in stone products look for a downward movement in prices, brought about primarily through the necessity for meeting the market of other primary building materials which have now assumed lower levels. It is held that prevailing figures of stone and affiliated products are holding back prospective purchasers. Stone dealers are hopeful that some action will be taken towards the lowering of freight rates on building stone, holding to the opinion that reduced tariffs would effect a corresponding reduction in the prices of stone materials.

Prices for the most part do not show any great change, and present levels have a certain stability that bids fair to hold present figures for some weeks to come. With the passing of a rather "lean" winter from the viewpoint of demand, producers are not keen to dispose of stocks produced under high prices for labor, and consequently there is a disposition to resist any much-reduced quotations. Gravel, 1½ and ¾-inch sizes, is selling at $2.50 a cubic yard in cargo lots; retail dealers are asking $4.25 for the material delivered on the job. Good quality sand is holding at $1.25 a cubic yard wholesale with building supply concerns selling around $2.25 a cubic yard for such stocks, with a figure of $2.50 prevailing in certain quarters. Dealers report increased inquiries and orders for the materials.

Crushed stone at New York is selling at $1.90 and $2.00 for 1½-inch material, and $2.15 for ¾-inch stock, wholesale in cargo lots. The current levels at the supply dealers are $4.00 and a shade above, delivered in either Manhattan or Bronx boroughs. Common lime is priced at $20.00 a ton, wholesale, while retail sales are being made on a basis of $4.80 a barrel of 300 pounds, delivered. Finishing lime is $21.00 a barrel in wholesale quantities and $5.00 per barrel of 300 pounds at the local building supply yards. Hydrate finishing lime is selling retail at $29.00 a ton, with bag rebate of 20 cents, and hydrate common lime at $24.00 a ton. Portland cement is quoted at $4.10 a barrel on the job, with bag rebate of 10 cents, as against a rebate of 25 cents a few weeks ago.

Building stone holds at previous levels and there does not seem to be any immediate change in sight. Limestone is selling for $1.78 to $1.80 and $2.25 to $2.27 for Indiana and Kentucky varieties, respectively. Briar Hill sandstone is quoted at $2.10 per cubic foot, and Gray Canyon material at $1.75. North River bluestone is listed at $2.05 per cubic foot, delivered. Granite is selling at $1.20 per square foot, and marble from $2.25 to $3.00 a cubic foot, according to selection.

The Athens Brick, Lime & Cement Co., New York, has been organized with a capital of $10,000 to operate a plant at Athens, N. Y. The company is headed by C. and J. Mayone, New

York, and is represented by F. I. Knorr, Albany.

The Eastern Gravel Corporation, New York, has filed notice of dissolution under state laws. The Consolidated Asphalt Co., Brooklyn, has also been dissolved.

The Maspeth Sand & Gravel Co., New York, has been incorporated with a capital of $20,000 to operate sand and gravel properties in the vicinity of Maspeth, L. I. The company is headed by D. D. Deutsch, G. Adelman and V. Fernandez, 785 Columbus avenue.

The Ludlow Sand & Gravel Co., Springfield, Mass., has been organized with a capital of $20,000 to deal in sand, gravel and crushed stone. Charles H. Wright is president, and John J. Toole, 43 Plymouth street, treasurer.

The West Jersey Sand & Supply Co., 419 Market street, Camden, N. J., has filed notice of increase in capital from $10,000 to $250,000 for expansion.

There is considerable activity in the sand and gravel districts of New Jersey, and with the opening of the spring season a number of new companies have been formed to operate properties in different parts of the state. The Pompton Sand & Gravel Co., Pompton, has been formed with a capital of $50,000; the company is headed by John Kane, Edward E. Dyer and Charles E. McDowell, 125 Prospect street, Passaic, N. J. The Sand & Gravel Corporation, Atlantic City, has been incorporated under state laws with a capital of $100,000 to operate local properties. The incorporators are J. S. and James V. Ferry, and E. W. Scudder.

Production of cement in the Lehigh Valley district of Pennsylvania is showing increasing proportions, and near-normal conditions are now beginning to prevail in this section. Practically all of the large companies are operating at their different mills, and the smaller concerns, where still idle, are making ready for early resumption. Shipments of material are growing from day to day, and the bulk of distribution at the present time is for domestic account. Foreign shipments are few and far between, and not over 2 per cent of current production is for the latter business at the present time. The Lehigh Portland Cement Co. has recently placed its second mill at Ormrod in operation, and with practically all other plants of the company running, conditions are running close to normal. The Atlas Portland Cement Co. is also using its large mills at Northampton under good output, and the plants of this company in other sections are resuming.

The Lehigh Slag Co., Catasauqua, Pa., recently formed with a capital of $50,000, will operate a local slag works. The company is headed by A. F. Kostenbader, Catasauqua.

The sand and gravel producers in the Pittsburgh, Pa., district are increasing activities with the advent of the spring season, although production throughout the winter has been maintained at a good point, assisted greatly by the fine open weather. The Keystone Sand & Supply Co. is bringing in large quantities of sand and gravel from its workings at Coraopolis, and the different towboats of the company are busy hauling flats every day. The company has been taking material to McKeesport and other points in this section. The Iron City Sand Co. is another active organization, and good sand production is under way at the different properties; the towboat "Iron City" is one of the active vessels on the river, and sizable quantities of high-grade sand are being distributed. The Rodgers Sand Co. is operating its digger at Ambridge and fine production is being maintained at this and other points. The material is finding a ready market in the Pittsburgh section, as well as other districts.

Labor Must Come Down

Indianapolis Tied Up Over Wage Scale—Other Indiana News Matters

By Our Indianapolis Correspondent

INDIANAPOLIS sand and gravel producers who cater to the construction end of the selling business, are wondering just how long it will take the contractors and the union laborers to get together. The men walked out April 15 and the contractors say they will do no more work this summer unless the building trades unions consent to a reduction of from 10 to 20 per cent in wages. The labor leaders say they will not work unless they are given an increase over last year's scale.

Producers here say they intend turning their attention, provided, of course, the strike is long drawn out, to the road business. It is doubtful if ever in the history of the state there was so much road construction contemplated. With a reduction of building material prices, the various municipal, township, county and state officials are not holding up contracts. The policy on this appears to have changed completely and there is a disposition to force through road improvements with the greatest expediency.

Because of the further increase in intra-state freight shipments, the area in which any producer may operate is somewhat restricted. A producer in the southern part of the state can not compete on a job in the north section with a producer in that section because of the high cost of freight. Little hope is held out that an appeal to the United States Supreme court over the interstate commerce commission decision will do any good. The producers here say the harm now is done since the rates are in effect and it will be months before a decision is rendered and by that time they expect rates down.

The state board of accounts will, under certain conditions and for a temporary period, approve advance payments to public contractors of 70 per cent of the value of material delivered on a job site, an announcement of which was sent from the state office recently to county auditors, township trustees, school officials and architects in Indiana. The advances are limited to brick, terra cotta, structural iron, metal and wood lath, radiators, furnaces, stone, crushed stone, framing timber and plumbing fixtures used in building and are limited to the following materials used in roads; stone, steel, gravel, brick, crushed stone, creosoted blocks for bridge flooring. The announcement states this arrangement was made because of general economic conditions and is to remain in effect until December 31, with at least 15 per cent of all estimates on buildings and 20 per cent on roads to be retained for at least thirty-one days after the completion of the contract in order to comply with the law made in 1911. The advances are governed by the filing of duplicate invoices, the inspection of material by a representative of the accounts board, and the protection of the job site material from weather elements.

The largest hydraulic stripping plant in the stone district has just been installed at Bedford, Ind. by the Indiana Quarries Company, at an approximate cost of $75,000, the work of installation having taken about a year. The plant consists of two large direct connected centrifugal pumps and a complete new water main system reaching from Salt creek at Oolitic, including the Hoosier and the P. M. & B. plants. One thousand gallons of water a minute is

guaranteed to be pumped through an inch and a half nozzle.

An accident recently at the plant of the Western Gravel and Cement Company in Indianapolis caused the death of William Gibson, a hoisting engineer. He was killed when he was caught between two rotating cable drums on an automatic bucket hoist, which he was operating. His body was caught in such a manner as to indicate that the tail of his coat had been caught between the cable and one of the drums, causing him to be drawn backward between them.

Governor McCray, of Indiana announced April 16 the appointment of the four members of the state highway commission. Under the reorganization of the commission carried out by the Governor, two of the old members continue on the board and two new members were named. The members of the reorganized commission are as follows: Alvin V. Burch, Evansville; Charles Zeigler, Attica; Earl Crawford, Connersville, and Walter Q. Zahrt, Ft. Wayne. The trade has been considerably interested in these appointments since the highway department is expected to get busy immediately on a large volume of new work.

All of the men named on the commission are prominent citizens of the state. Mr. Burch is president of the Blount Plow Works, one of the largest industrial plants in southern Indiana. He has been active in public life and is well known. Mr. Zeigler is president of the Farmers' National Bank at his home. He has been active in the good roads movement. Mr. Crawford is a banker and farmer of Connersville. He has been a member of the commission since 1919. Mr. Zahrt is assistant general manager of the S. F. Bowser & Co., of Ft. Wayne.

City Plants Approved

But Detroit Fails to Make Any Appropriation to Establish Them

AT ITS April election Detroit voted on an amendment to the city charter to empower the city to establish plants for the manufacture of construction material.

This amendment was passed by a decisive vote, the figures being 90,660 for the proposition and 30,329 against it.

But no steps seem likely to be taken immediately to put any such plan into effect. Regarding it Richard Lindsay, chairman of the election commission, says:

"Any plans of this nature must, of course, first have the approval of the legislative body, and appropriations arranged. As the budget for the ensuing fiscal year has gone through with no appropriations for work of this character, there is little likelihood of such plants being undertaken in the immediate future."

The proposal as placed before the voters was as follows:

Do you favor amending Subdivision (e) of Section 5 of Chapter 8 of Title 4 of the City Charter so as to give the Commissioner of Public Works the power, with the approval of the Common Council, to establish and operate plants for the manufacture of common brick and vitrified crocks for the construction of sewers and creosote blocks for paving purposes; and to acquire by purchase or lease lands, buildings and manufacturing plants and to erect buildings and other structures on said lands for the manufacture of cement and for procuring the necessary sand and gravel for the construction of public improvements and for other public purposes?

Edward German, Upper Main Street, Slatington, Pa., has a force of men employed on his property at Lehigh Gap preparatory to establishing a new slate quarry there.

Freight Only Handicap

Otherwise Producers of Louisville District Would Be Reasonably Satisfied

By Our Louisville Correspondent

THE outstanding feature of the situation here at the present time is the handicap of high freight rates to commercial quarry operations. The cost of transportation is such a heavy damper on development of commercial business prospects that the operators of quarries are sorely discouraged and are not inclined to try much further at operating big plants except for railway business. The upshot of it is the keeping of established quarries idle and the developing of portable quarrying plants at various points so as to make local delivery practical. This seems to be the strong feature especially of the good roads development, and while this will perhaps create a demand for machinery it is very depressing to the men with established quarry plants.

The general outlook so far as road and street making is concerned is very good, especially in road building. There are not only a lot of highway contracts already let and under way in the state but there are new prospects coming up right along. For example Chairman H. Green Garrett, of the state highway commission, is making a trip to Washington in the interest of legislation that will make for more federal aid in road building. There are several counties in the state coming forward wanting to put up funds to meet state and federal appropriations to build new roads, so the outlook for road building generally is very good indeed.

The report is not quite so fine in the matter of local street building. There were about $350,000 worth of street bids opened and there was some hesitancy and protest because of the high figures in the bids. Finally, however, the Board of Public Works accepted bids for something like this amount, and it was thought the thing was settled. Then along came the general council of the city and instead of O. K.-ing the contracts rejected them, and now it is an open question of whether or not and how much of the street and alley work will be done in Louisville this summer. It seems to be a matter of whether or not contractors will be able to meet the lower prices sought by the Board of Works.

In the sand and gravel trade the volume of local business varies some with the weather but in the main is developing very nicely. There is perhaps more construction generally in Louisville than in most cities of its size and this is developing what might be termed a normal local trade in building sand and gravel.

The carlot trade to points in the surrounding territory started off briskly early in the season but at this writing is a little bit slow. There is a feeling that part of the brisk early trade was due to depleted stocks, and that part of the present let-up is due to the high freight rates which add sharply to the delivered cost of sand and gravel by rail. The indications are that while this may curtail the volume of business some, otherwise conditions are good for about the normal volume of shipping trade during the spring season.

R. B. Tyler, who is widely interested in quarry work and road building and in asphalt surfacing, says that while he made preparations to put his local quarry plant in operation he has not started it yet because freight rates are too serious a handicap for commercial business. He says all the quarry men in the state are up against the same proposition and there is practically nothing being done except quarrying for railroad work and for nearby local needs.

He is operating his plant at Hodgensville right along where he has road contracts and local delivery. Also in connection with another road contract secured recently he is building a portable quarry plant at Glasgow, Ky. Here he has the contract to construct eleven miles of highway and surface it. He is at present putting in equipment for this job but is not very hopeful of operations in the main quarry plant here until freight rates are more favorable.

Among the sand and gravel people there is also some complaint about freight rates but perhaps they do not feel it as sharply as the quarry interests.

J. E. Lloyd, who has charge of the E. T. Slider Co. yards on the Louisville side, says that the local trade in sand and gravel is doing fairly well. It fluctuates some with the weather but on the whole is doing about as well as could be expected and they are fairly busy all around. This seems to be the story, too, with the other sand and gravel yards here. They have their digging equipment busy and going full force because stocks were pretty well cleaned down in the yards when the season started and they need to stock up. The delivery rigs and yard forces are fairly busy with prospects that the trade will run normal or a little above it during the spring.

Organization is reported of the Eastern Sand & Supply Company, Boston, Mass. Incorporators are William T. Nicholson and Fred B. Oliver, 168 Dartmouth Street. The company will conduct a local sand and gravel business.

Massachusetts Lime & Cement Company, 379 Portland Street, Cambridge, Mass., is constructing a new addition to its plant, which will be used for warehouse purposes. The dimensions of this building will be 250x250 feet, at an approximate cost of $30,000. Henry Rubin, 28 Abbott Street, is the building contractor.

Denies Rate Increase

New York Public Service Commission Refuses Petition of Railways

TAXPAYERS of the State of New York have been saved about $500,000 a year by the decision of the Public Service Commission, denying the petition of railways for increased rates on sand, gravel, crushed stone, rock and slag.

This statement was made by N. D. Chapin, manager of the traffic bureau of the Syracuse Chamber of Commerce, who represented the shippers and receivers before the commission.

The materials for which increased rates were asked enter into all road construction and had the rates been granted the extra cost would have been passed on to municipalities, nearly 80 per cent of all such materials being consumed in highway construction, he says.

Mr. Chapin began his fight in August, when the railways first announced the proposed increase. The shippers obtained a suspension of the rates which acted as a stay until the question could be decided. The increase asked for amounted to 40 per cent or an average of 35 cents a ton.

The successful issue of the fight conducted by Mr. Chapin also is of particular interest to Syracuse as the Solvay Process Company and the several large quarries about the city are either shippers or receivers of these materials in great quantities.

The Maspeth Sand & Gravel Company, Queens, N. Y., is a new corporation, capital stock, $20,000. Incorporators are D. D. Deutsch, G. Adelman, and V. Fernandez, 785 Columbus Ave.

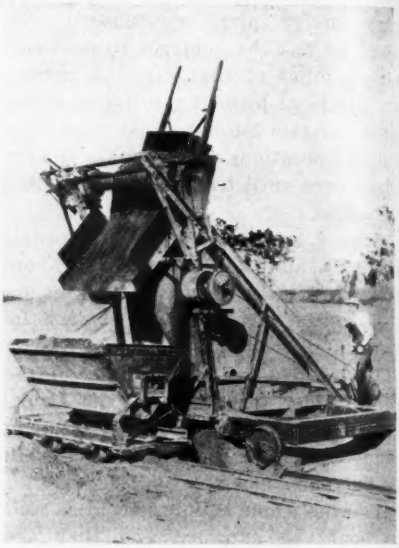
An increase of capital stock from $5,000 to $15,000 is announced by Columbus Gravel Company, Columbus, Ind.

Excavator and Loader in Pits and Quarries

In the sand pits of The Belt Line Brick Co., Minneapolis, an interesting "two-man-machine" has been doing the work of twenty to thirty laborers daily.

At the edge of the sand pit, as shown in the illustrations, two sets of tracks were laid. One was a narrow-gauge, over which industrial cars were hauled. The other track had a gauge of about 18 feet and carried a wide, four-wheeled truck on which had been mounted a Smith excavator and loader. The two sets of tracks were parallel, arranged so the machine could load directly into the cars of the industrial train. Each car holds about two loads from the machine, which digs the sand and loads it into the cars, with only two men on the job. When necessary to move the digging point in the pit, the truck on which the excavator is mounted is merely rolled along its track to the desired position.

The machine is a portable drag-line excavator and loader, ordinarily mounted on its own trucks and designed so it can be hauled by a team or motor truck from one location to another. It operates a digging slip or scraper similar to the ordinary horse-drawn scraper. This scraper digs in a radius up to 100 to 150 feet from the machine. One man guides the scraper while it digs. When full, the scraper is hauled up to the machine unattended. The loaded scraper then rides into the pivoted arms of the excavator, which elevate it over the machine and the load is dumped into the waiting cars. One man operates the machine; one man guides the scraper.



Two hundred and fifty yards of sand per day was an easy average day's work for two men on the Belt Line Brick Company's pit.

The above adaptation of the Smith excavator and loader was unusual only in that the machine was mounted so as to run on rails as explained above. Ordinarily the machine, on its own trucks and wheels, would be placed at any convenient spot, on solid ground, near the pit or excavation or material pile on which the work was to be done.

The fact that the machine itself works on solid ground and never has to get into the hole, is an important feature.

The machine is furnished complete with digging scraper, cables, sheaves and blocks, bridle chain and stakes, wagon pole and all the necessary accessories. An 18 H. P. two-cylinder motor is used in this machine, with water cooling tanl

The Smith excavator and loader is made by The T. L. Smith Company, Milwaukee.

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Western Ave., 17th and 18th Sts.

A Headacheless Quarry

A certain quarry superintendent before accepting a man in his employ always asked these two questions: "Have you ever handled explosives? Do you get 'powder headaches.'"

If the applicant had never handled explosives before, or was not immune to the headache caused by handling and using dynamite, the superintendent would hesitate before engaging him, and often, unless the need was urgent, would refuse to do so. He knew that the man would be very apt to quit his job after experiencing the "powder headache" and that this would necessitate looking for another man.

Today, that quarry is known as the "headacheless quarry." The superintendent grabbed at the opportunity afforded by the recent production of a new explosive, the use of which does not cause headaches. The men now stay on their jobs and, it is reported that, in addition to the non-headache feature, they have found that fewer cartridges of the new explosive are required to accomplish a successful blast than was formerly needed with the use of ordinary dynamite.

Because this explosive cannot be affected by any degree of cold, the powder company that makes it has chosen to name it, "Atlas Non-Freezing." It cannot freeze, regardless of the temperature and it never requires thawing. The feature enchances the value of the explosive to those concerns with cold weather blasting. The quarry superintendent regards this production as a marked advance in the explosive industry and predicts that better blasting conditions will shortly come to pass. The use of the new non-headache powder is a good beginning toward this end.

The Sunlight Crushed Stone Co., Madisonville, Ky., recently organized with a capital of $100,000, is planning for the installation of a complete rock crushing plant at its local properties. The company has a tract of about 500 acres of land, and a large part of this property will be placed under development. It is proposed to develop a daily output of about 750 tons of limestone. W. J. Sparks, Mount Vernon, Ky., is president and general manager; J. Basil Ramsey, Madisonville, is treasurer.

LeClair Scraper Added to Sauerman Bros.' Line

Announcement is made by Sauerman Bros., 312 S. Dearborn St., Chicago, that they have arranged with Mr. S. D. LeClair of San Francisco, Cal., to take over the manufacturing and selling rights on the power drag scraper of which Mr. LeClair is patentee.

This gives Sauerman Bros. four different types of scrapers, namely, the Crescent, Type C, Excavator, and LeClair. All four types of scrapers are similar in one respect—they are all bottomless and thus require no power or mechanism for dumping, but the differences in design and weight make each type of scraper supreme for handling a certain class of material.

Sales Reported

Mr. L. P. Green, 907 Lumberman's Exchange Bldg., Chicago, reports that business this year has far exceeded his expectations. He sold six Arrow power drag scrapers to Wisconsin County Road Commissions in February and March, which is one more than the entire Wisconsin sales last year.

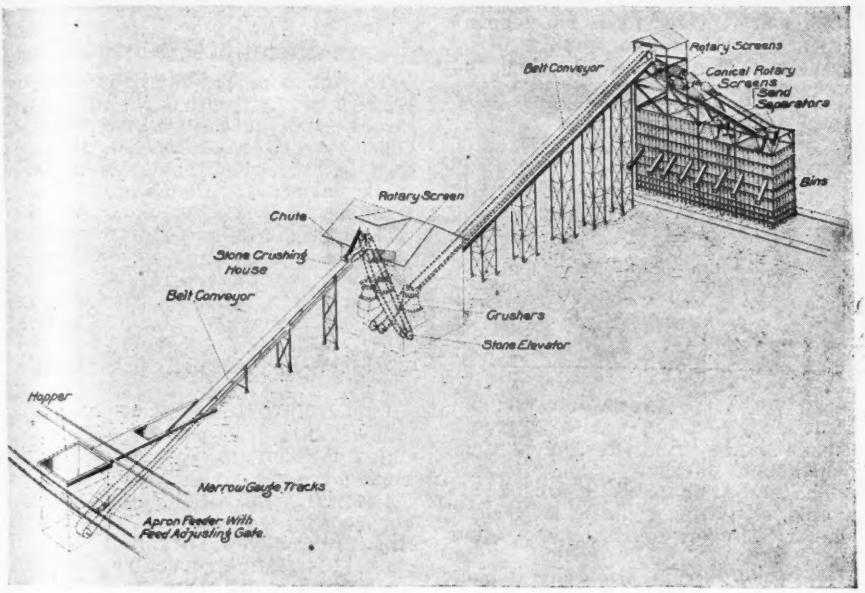
The Daltex Gravel Co., 406 Deere Building, Dallas, Tex., is planning for the installation of new machinery at its gravel properties, including dragline equipment and other apparatus. The company's property totals about 75 acres, and a daily output of about 300 cubic yards of material will be developed. The company was recently organized with a capital of $50,000. Patrick C. Miller is president and manager.

The Buckeye Stone Co., 425 Slaughter Building, Dallas, Tex., recently formed with a capital of $150,000, will soon commence the installation of a new rock crushing plant at its local properties. The company has a tract of about 150 acres of land, and proposes to develop a daily output of about 3,000 tons of material. W. V. Cullen is president and C. L. Johnson, vice-president.

The Baker Co., Martinsburg, W. Va., has arranged for a wage reduction at its local stone quarries, from $3.25 to $2.50 for a 10-hour day. The change will become effective at once.

LINK-BELT

Sand and Gravel Plants



Typical Link-Belt Sand and Gravel Washing Plant

Each Link-Belt Sand and Gravel plant is built to secure the greatest commercial advantages for its owners—whether the desired output be 10 or 300 carloads a day.

Each plant has its individuality, and the details of design make it the most efficient for its work, from every standpoint—economy of operation—high quality of material — simplicity — durability, etc.

Link-Belt Screens, scrubbers, sand separators, excavators, spouts, gates, feeders, water pans, belt conveyors, bucket elevators, etc., are features of Link-Belt plants that earn dividends for their users. If you contemplate additions to, or changes in your present equipment, or a new plant, why not put your problem up to our engineers?

Send for catalog

LINK-BELT COMPANY

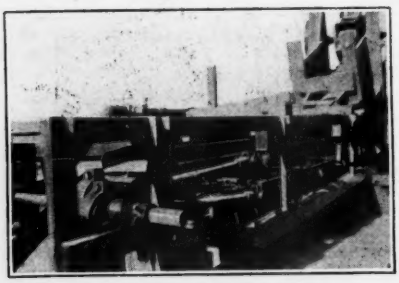
Chicago, 329 W. 39th Street — **Philadelphia, Hunting Park Ave., and P & R Ry.**

OFFICES IN ALL PRINCIPAL CITIES

Portland Sand and Gravel Uses Shaker Screen

The Valley Junction plant of the Portland Sand and Gravel Co., of Des Moines, Ia., is one of the best equipped and most modern plants in the state. It is operated entirely by electricity, and has an almost unlimited supply of material.

This firm prides itself on clean aggregate, and on the quality of its product. They have furnished ma-



terial for some of the largest construction jobs in central Iowa, among them the new Pyramid Cement Companies kiln stacks.

The screening plant is exceedingly simple, consisting of an E. & S. No. 2 shaker screen, providing for four separations.

Mr. C. W. Grant, the general manager of the concern, claims it to be the most efficient and economical screen they have ever used.

The material is dredged with a No. 10 Amsco centrifugal pump, which to date has pumped upwards of 3,000 cars of material, with practically no outlay for repairs. The material is carried in Universal pipe about 800 ft. from the dredge to the screening plant.

The company owns its own siding and switching engine. The capacity is about 35 cars per day.

New Southern Office

The Brown Hoisting Machinery Company of Cleveland, Ohio, announces the opening of a southern office in the Whitney-Central Building, New Orleans, La. The states of Texas, Louisiana, Mississippi, Alabama, Georgia and Florida will be covered from this office.

Mr. Charles H. White, manager of the new office, has been with the Brown Hoisting Machinery Company for a number of years, and is an experienced sales engineer on all types of Brownhoist products. Among these are locomotive cranes, buckets, electric hoists, trolleys and a wide range of cranes and hoists.

Other branch offices of the company are located at New York, Pittsburgh, Chicago and San Francisco.

Recent Patents

The following patents of interest to readers of this journal recently were issued from the United States Patent Office. Copies thereof may be obtained from R. E. Burnham, patent and trademark attorney, Continental Trust Building, Washington, D. C., at the rate of 20 cents each. State number of patent and name of inventor when ordering.

1,371,224. Tunneling-machine. Le Roy W. Campbell, Grand Rapids, Mich., assignor to Tunnel & Sewer Machine Engineering Co., Buffalo, N. Y.

1,371,200. Belt-supporting-pulley system. Walter J. Armstrong, Columbus, Ohio, assignor to Jeffrey Mfg. Co., same place.

1,371,291. Bucket. Herbert S. Atkinson, East Orange, N. J., assignor to Hayward Co., New York, N. Y.

1,371,314. Mining-machine. Nils D. Levin, Columbus, Ohio, assignor to Jeffrey Mfg. Co., same place.

1,372,775. Shaker-screen apparatus. Oluf G. Petersen, Somerset, Ky.

1,374,410. Ball-mill for crushing ores. Mikael Vogel-Jorgensen, Frederiksberg, Denmark.

1,374,525. Coal-mining machine. John D. Pugh, Harrisburg, Pa.

1,374,527. Section-carrier for steam-shovels. William N. Rowe, Hibbing, Minn.

1,374,567. Dump-car. David Hindahl, Chicago, Ill., assignor to Rodger Ballast Car Co., same place.

1,374,568. Convertible ballast-car. David Hindahl, Chicago, Ill., assignor to Rodger Ballast Car Co., same place.

1,374,823. Crushing-mill of the roller and ring type. Charles M. Conder and Godfrey T. Vivian, Camborne, England.

Planters' Lime & Fertilizer Company is a new $1,500,000 company at Penters' Bluff, Ark.